

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.94  
Test oil : ISO 4113  
Combination No. : 0402646881  
Injection pump  
Pump designation : PE6P120A720RS7176  
: -10  
EP type number : 0412626929  
Governor  
Governor design. : RQV300...900PA795-4  
Governor no. : 0421813888

Cust. part No. :

Customer-spec. information  
Customer : SCANIA  
Motor : DS11

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0

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x length mm : 600

## REMARKS

Check and set without ROBO diaphragam

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

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Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

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Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

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(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.50  
Tolerance mm : + 0.20

Rated speed rpm : 945  
guide sleeve  
travel mm : 8.00  
Tolerance mm : + 0.10

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.20  
Tolerance mm : + 0.30

Rated speed rpm : 650  
guide sleeve  
travel mm : 5.00  
Tolerance mm : + 0.30

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GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 970

Rack travel in mm : 12.80  
Tolerance mm : + 1.30

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FULL LOAD DELIVERY AT FULL LOAD STOP

A02

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

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RATED SPEED

control lever  
position degree : 50.0  
tolerance degree : + 4.0

control lever  
position degree : 97.0  
tolerance degree : + 4.0

rack travel mm : 13.10  
Rated speed rpm : 945  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1045  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1150

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LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

control lever  
position degree : 17.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 4.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 360



Tolerance 1/min : + 30  
Rated speed rpm : 100  
CRT mm min. : > 10.00

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#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.15  
Tolerance mm : + 0.05

Rated speed rpm : 900  
rack travel mm : 14.15  
Tolerance mm : + 0.05

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

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#### BREAKAWAY

Rack travel in mm : 13.10  
Rated speed rpm : 945  
Tolerance 1/min : + 5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 25.0

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#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

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Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.10.94  
Test oil : ISO 4113  
Combination No. : 0402646885  
Injection pump  
Pump designation : PE6P120A720RS7126  
: -10  
EP type number : 0412626929  
Governor  
Governor design. : RQV350...1050PA795  
: -9  
Governor no. : 0421813769  
Cust. part No. : 1305080

Customer-spec. information  
Customer : SCANIA  
Motor : DS11 54,57

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901019  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 4.40  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1230

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

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Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 54.0  
tolerance degree : ± 4.0

control lever  
position degree : 102.0  
tolerance degree : ± 4.0

rack travel mm : 13.10  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

control lever  
position degree : 23.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.40  
Tolerance mm : ± 0.30

Rated speed rpm : 100

CRT mm min. : > 10.00

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 300

##### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 510  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 13.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

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#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.10.94  
Test oil : ISO 4113  
Combination No. : 0402646892  
Injection pump  
Pump designation : PE6P120A72ORS7170  
EP type number : 0412626829  
Governor  
Governor design. : RQ900PA758-12  
Governor no. : 0421801500  
Cust. part No. : 1305084

Customer-spec. information  
Customer : SCANIA  
Motor : DS 11

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901019  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test Lines : 1680750015  
Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

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## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
Prestroke mm : 5.05  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 850  
Rack travel in mm : 12.55  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 247.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### RATED SPEED

control lever  
position degree : 86.0  
tolerance degree : + 4.0

##### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.55  
Tolerance mm : + 0.05

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500

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Pressure hPa : 900  
rack travel mm : 12.55  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.90  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 575  
rack travel mm : 12.05  
Tolerance mm : + 0.05

Pressure hPa : 370  
rack travel mm : 10.85  
Tolerance mm : + 0.15

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.90  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.94  
Test oil : ISO 4113  
Combination No. : 0402646909  
Injection pump  
Pump designation : PE6P120A320RS7138  
: -10Z  
EP type number : 0412626923  
Governor  
Governor design. : RQV200...1100PA712  
: -5  
Governor no. : 0421813951  
Cust. part No. : 1318819

Customer-spec. information  
Customer : SCANIA  
Motor : DS9 07

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
Test nozzle holde  
assembly : 1688901104  
Opening pressure  
bar : 251.5  
Tolerance bar : + 1.5  
Test lines : 1680750008  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 4.45  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.85  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 4.60  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

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Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### RATED SPEED

control lever  
position degree : 61.0  
tolerance degree : ± 4.0

control lever  
position degree : 116.0  
tolerance degree : ± 4.0

rack travel mm : 10.80  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1285  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1400

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

control lever  
position degree : 9.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 5.80

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 250

#### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 220  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.15

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 10.80  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

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#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.94  
Test oil : ISO 4113  
Combination No. : 0402646910  
Injection pump  
Pump designation : PE6P120A320RS7138  
: -10  
EP type number : 0412626922  
Governor  
Governor design. : RQV200...1100PA712  
: -5  
Governor no. : 0421813951  
Cust. part No. : 1318823

Customer-spec. information  
Customer : SCANIA  
Motor : DSC908

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1688901104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5  
Test lines : 1680750008  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.15  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 4.60  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

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Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### RATED SPEED

control lever  
position degree : 63.0  
tolerance degree : ± 4.0

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

rack travel mm : 12.10  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1290  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1400

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

control lever  
position degree : 9.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 5.80

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 250

#### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 480  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 220  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.10  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



**Note remarks**

Edition : 04.07.94  
Test oil : ISO 4113

Combination No. : 0402646911

[illegible]

Governor  
Governor design. : RQ200/1100PA873-1  
Governor no. : 0421801615

Cust. part No. : 1318821

Customer-spec. information  
Customer : SCANIA  
Motor : DSC9 07

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar :  $\pm$  0.1

Test nozzle holde  
assembly : 1688901104

Opening pressure : 251.5 bar  
Tolerance bar :  $\pm 1.5$

Test Lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

```

Prestroke mm      :      4.45
Tolerance mm      :  + 0.05

```

test only :  $\pm 0.10$ 

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

```

Phasing      : 0-60-120-180-240
              : -300
Tolerance    : + 0.30
Check
tolerance °NW : + 0.75

```

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.85  
Tolerance mm :  $\pm 0.05$



Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 4.60  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 151.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### RATED SPEED

control lever  
position degree : 44.0  
tolerance degree : ± 4.0

control lever  
position degree : 98.0  
tolerance degree : ± 4.0

rack travel mm : 10.80  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1400

---

##### LOW IDLE

control lever  
position degree : 63.0  
tolerance degree : ± 4.0

control lever  
position degree : 10.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min : ± 20

Rated speed rpm : 150

CRT mm min. : > 5.80

---

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm : ± 0.05



Rated speed rpm : 1100  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 220  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 116.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.80  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.94

Test oil : ISO 4113

Combination No. : 0402646927

Injection pump  
Pump designation : PE6P120A320RS7138  
: -10

EP type number : 0412626922

Governor  
Governor design. : RQV300...900PA712-7  
Governor no. : 0421813913

Cust. part No. : 1324212

## Customer spec. information

Customer : SCANIA  
Motor : DS9 05

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 4.45  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.25  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 4.70

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1000

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### RATED SPEED

control lever  
position degree : 49.0  
tolerance degree : + 4.0

control lever  
position degree : 104.0  
tolerance degree : + 4.0

rack travel mm : 11.20  
Rated speed rpm : 945  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1025  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1150

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

control lever  
position degree : 15.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 4.70  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 10.00

---

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 300

---

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.25  
Tolerance mm : + 0.05



Rated speed rpm : 900  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 360  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

A20

Rack travel in mm : 11.20  
Rated speed rpm : 945  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113

Combination No. : 0402646993A

Injection pump  
Pump designation : PE6P120A320LS7852-1  
EP type number : 0412626910

Governor  
Governor design. : RQ300/1050PA1030-18  
Governor no. : 0421801746

Cust. part No. : 0230744502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power kW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6-3-5-2-4-1-

Phasing : 0-60-120-180-240  
-300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 100.0  
tolerance degree : ± 4.0

rack travel mm : 14.10  
Rated speed rpm : 1098  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 8.50

##### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.10  
Tolerance mm : ± 0.05

Rated speed rpm : 1050  
rack travel mm : 15.10  
Tolerance mm : ± 0.10



---

**ANEROID/ALTITUDE  
COMPENSATOR TEST****SETTING**

Rated speed rpm : 400  
Pressure hPa : 1100  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

**MEASUREMENT**

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.20

---

**START CUT-OUT**

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

**FUEL DELIVERY CHARACTERISTICS**

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -

**A23**

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

**BREAKAWAY**

Rack travel in mm : 14.10  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

**STARTING FUEL DELIVERY**

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

**LOW IDLE**

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113

Combination No. : 0402646994A

Injection pump  
Pump designation : PE6P120A320LS7852  
EP type number : 0412626871

Governor  
Governor design. : RQ300/950PA1032-13  
Governor no. : 0421801747

Cust. part No. : 0230744202

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Customer spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power kW : 250.0

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### TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

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### REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

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### BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

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### BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

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### BASIC SETTING

Rated speed rpm : 550

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Rack travel in mm : 15.10  
Tolerance mm : ± 0.05

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Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 100.0  
tolerance degree : ± 4.0

rack travel mm : 14.10  
Rated speed rpm : 998  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1200

##### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 440  
Tolerance 1/min : ± 20

Rated speed rpm : 200

CRT mm min. : > 8.80

##### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.10  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 15.10  
Tolerance mm : ± 0.10



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# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 400  
Pressure hPa : 1100  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

## MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 150  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.20

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## START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

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## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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## BREAKAWAY

Rack travel in mm : 14.10  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  8

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## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

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## LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.10.94  
Test oil : ISO 4113

Combination No. : 0402648867

Injection pump  
Pump designation : PE8P120A720/4LS7166  
: -1  
EP type number : 0412628897

Governor  
Governor design. : RQ750PA758-7  
Governor no. : 0421801490

Cust. part No. : 1305125

Customer spec. information  
Customer : SCANIA  
Motor : DS 14

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### RATED SPEED

control lever  
position degree : 30.0  
tolerance degree : ± 4.0

control lever  
position degree : 89.0  
tolerance degree : ± 4.0

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 12.55  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.90  
Tolerance mm : ± 0.20

Rated speed rpm : 500

Pressure hPa : 365  
rack travel mm : 11.85  
Tolerance mm : ± 0.05

Pressure hPa : 215  
rack travel mm : 10.90  
Tolerance mm : ± 0.15

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
Combination No. : 0402648874  
Injection pump  
Pump designation : PE8P120A720LS7189  
                  : -10  
EP type number : 0412628893  
Governor  
Governor design. : RGV200...950PA736-8  
Governor no. : 0421813815

Cust. part No. : 1303811

Customer spec. information  
Customer : SCANIA  
Motor : DSC14 10

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
                  : - 5- 6- 8

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.05  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 4.50  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 9.50  
Tolerance mm : ± 2.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### RATED SPEED

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

control lever  
position degree : 94.0  
tolerance degree : ± 4.0

rack travel mm : 12.00  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1250

#### LOW IDLE

control lever  
position degree : 45.0  
tolerance degree : ± 4.0

control lever  
position degree : 11.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 5.80

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 275

#### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 525  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 320  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

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#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402648896  
  
Injection pump  
Pump designation : PE8P120A720LS7189  
                              : -10Q  
EP type number : 0412628894  
  
Governor  
Governor design. : RQV200...950PA736-9  
Governor no. : 0421814050  
  
Cust. part No. : 1320645

Customer-spec. information  
Customer : SCANIA  
Motor : DSC14 08

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
  
Tolerance l/h : + 10.0  
  
Test nozzle holde  
assembly : 1688901104  
  
Opening pressure  
bar : 251.5  
Tolerance bar : + 1.5  
  
Test lines : 1680750008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragam

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4  
                  : - 5- 6- 8

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 2

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 150

Rack travel in mm : 4.50  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 9.50  
Tolerance mm : ± 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

control lever  
position degree : 93.0  
tolerance degree : ± 4.0

rack travel mm : 11.30  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1105  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 46.0  
tolerance degree : ± 4.0

control lever  
position degree : 11.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 250  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

Rated speed rpm : 150  
CRT mm min. : > 5.80

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 300

##### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 525  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 320  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### BREAKAWAY

Rack travel in mm : 11.30  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.20  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

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#### LOW IDLE

Rated speed rpm : 150  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
Combination No. : 0402648897  
Injection pump  
Pump designation : PE8P120A720LS7189  
                              : -10  
EP type number : 0412628897  
Governor  
Governor design. : RQV200...950PA736-9  
Governor no. : 0421814050

Cust. part No. : 1320643

Customer spec. information  
Customer : SCANIA  
Motor : DSC14 10

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar : + 0.1

Tolerance L/h : + 10.0

Test nozzle holder  
assembly : 1688901104

Opening pressure  
bar : 251.5  
Tolerance bar : + 1.5

Test lines : 1680750008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1-2-7-3-4  
                  : -5-6-8

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.05  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 250

Rack travel in mm : 4.50  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1120

Rack travel in mm : 9.50  
Tolerance mm : ± 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

control lever  
position degree : 94.0  
tolerance degree : ± 4.0

rack travel mm : 12.00  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 46.0  
tolerance degree : ± 4.0

control lever  
position degree : 11.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 250  
rack travel mm : 4.50  
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 5.80

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 300

##### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 525  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 320  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 224.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.70  
Tolerance mm :  $\pm$  0.20  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402648943  
  
Injection pump  
Pump designation : PE8P120A720LS7189  
                  : -10  
EP type number : 0412628893  
  
Governor  
Governor design. : RQV350...1050PA795  
                  : -14  
Governor no. : 0421814020  
  
Cust. part No. : 1340518

Customer-spec. information  
Customer : SCANIA  
Motor : DSC14

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 2.5  
Tolerance bar : + 0.1  
  
Test nozzle holde  
assembly : 1688901104  
  
Opening pressure  
bar : 251.5  
Tolerance bar : + 1.5  
  
Test lines : 1680750008  
  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4  
                  : - 5- 6- 8

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.25  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1150

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 216.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 46.0

control lever  
position degree : 106.0  
tolerance degree : ± 4.0

rack travel mm : 11.20  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

control lever  
position degree : 15.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.50

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.25



Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 1050  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 525  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 320  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 25.08.94  
Test oil : ISO 4113  
Combination No. : 0402648944  
Injection pump  
Pump designation : PE8P120A920/4LS7266  
: -1  
EP type number : 0412628898  
Governor  
Governor design. : RQ750PA758-15  
Governor no. : 0421801660  
Cust. part No. : 1340528

Customer-spec. information  
Customer : SCANIA  
Motor : DS 14

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 2.5  
Test nozzle holde  
assembly : 1688901104  
Opening pressure  
bar : 251.5  
Tolerance bar : + 1.5  
Test lines : 1680750008  
Outside diameter : 6.0  
x inside diameter : 2.0

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x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
Prestroke mm : 5.05  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 14.95  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 759  
guide sleeve  
travel mm : 6.36  
Tolerance mm : + 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : -5.69  
Tolerance mm : + 0.25

Rated speed rpm : 850  
guide sleeve  
travel mm : 16.58  
Tolerance mm : + 0.25

Rated speed rpm : 798  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 860  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 36.0  
tolerance degree : + 4.0

control lever  
position degree : 88.0  
tolerance degree : + 4.0

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.95  
Tolerance mm : + 0.05

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.95  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.00  
Tolerance mm : + 0.20

Rated speed rpm : 500  
Pressure hPa : 670  
rack travel mm : 13.45  
Tolerance mm : + 0.05

Pressure hPa : 450  
rack travel mm : 12.20  
Tolerance mm : + 0.20

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500



Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.00  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 16.12.94

Test oil : ISO 4113

Combination No. : 0402648959

## Injection pump

Pump designation : PE8P120A720LS7189

EP type number : 0412628893

## Governor

Governer design. : RQV350...1100PA795

: -15

Governer no. : 0421814048

Cust. part No. : 1340524

## Customer-spec. information

Customer : SCANIA

Motor : DSI1453A

## TEST BENCH REQUIREMENTS

### Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

### Test nozzle holde assembly

: 1688901104

### Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

Check and set without ROBO diaphragam

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 5.05

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.30

Check tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.45

Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 4.60  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1250

Rack travel in mm : 10.50  
Tolerance mm : ± 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 47.0  
tolerance degree : ± 4.0

control lever  
position degree : 105.0  
tolerance degree : ± 4.0

rack travel mm : 12.40  
Rated speed rpm : 1145  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1275  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

control lever  
position degree : 15.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 7.70

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

##### TORQUE CONTROL



Rated speed rpm : 700  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 1100  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 740  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.40  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402648982  
  
Injection pump  
Pump designation : PE8P120A320LS7884  
EP type number : 0412628900  
  
Governor  
Governor design. : RQV350...1200PA1197  
Governor no. : 0421814116

Cust. part No. : 0250744102

Customer-spec. information  
Customer : MTU  
Motor : 8V-183-03  
Power KW : 564.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

B20

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 9.50



Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 3.80  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.53  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1255  
guide sleeve  
travel mm : 8.31  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1000  
guide sleeve  
travel mm : 5.83  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 407  
guide sleeve  
travel mm : 2.57  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 457  
guide sleeve  
travel mm : 3.13  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 610  
guide sleeve  
travel mm : 3.65  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1360  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1320

Rack travel in mm : 13.00  
Tolerance mm :  $\pm$  1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.00  
Rated speed rpm : 1245



Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1345  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1450

#### LOW IDLE

control lever  
 position degree : 64.0  
 tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
 rack travel mm : 3.80  
 Tolerance mm : + 0.10  
 Rated speed rpm : 250  
 CRT mm min. : > 5.30

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 450

#### TORQUE CONTROL

Rated speed rpm : 600  
 rack travel mm : 9.50  
 Tolerance mm : + 0.05  
 Rated speed rpm : 1200  
 rack travel mm : 14.00  
 Tolerance mm : + 0.10  
 Rated speed rpm : 750  
 rack travel mm : 14.00  
 Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 6.00  
 Tolerance mm : + 0.15

Pressure hPa : 500  
 rack travel mm : 7.20  
 Tolerance mm : + 0.05

Pressure hPa : 250  
 rack travel mm : 9.00  
 Tolerance mm : + 0.10

Pressure hPa : 1600  
 rack travel mm : 13.00  
 Tolerance mm : + 0.05

Pressure hPa : 1000  
 rack travel mm : 10.60  
 Tolerance mm : + 0.10

#### START CUT-OUT

Rated speed rpm : > 100  
 Check  
 speed 1/min : > 80  
 Rated speed rpm : < 270  
 Check  
 speed 1/min : < 290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 2000  
 Rated speed rpm : 1200  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 334.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : 2000  
 Rated speed rpm : 750  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 380.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 127.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 370.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 3.80  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 15.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.94  
Test oil : ISO 4113  
Combination No. : 0402676809  
Injection pump  
Pump designation : PE6P120A72ORS7126  
: -10  
EP type number : 0412626929  
Governor  
Governor design. : RSV350...1050P1A543  
: -1  
Governor no. : 0421833325  
Cust. part No. : 1305082

Customer-spec. information  
Customer : SCANIA  
Motor : DS11 54,57

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901019  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750015  
Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 2

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 14.15  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1180  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 28.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 3.90

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min :  $\pm$  30



Rated speed rpm : 100  
CRT mm min. : > 19.50

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 510  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0



## Note remarks

Edition : 04.07.94  
Test oil : ISO 4113

Combination No. : 0402676813

Injection pump  
Pump designation : PE6P120A720RS7188  
                  : -10  
EP type number : 0412626924

Governor  
Governor design. : RSV350...1050P1A543  
: -2  
Governor no. : 0421833385

Cust. part No. : 1337551

Customer-spec. information  
Customer : SCANIA  
Motor : DS11 ALLVARV

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 2.5  
Tolerance bar :  $\pm$  0.1

Test nozzle holde  
assembly : 1688901104

Opening pressure : 251.5 bar  
Tolerance bar :  $\pm 1.5$

Lube oil : 1409918004

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar :  $\pm$  1.0

```
Prestroke mm      :      4.45
Tolerance mm      :  + 0.05
```

test only :  $\pm 0.10$ 

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 1.50$

Firing order : 1- 5- 3- 6- 2-  
: 4

```
Phasing      : 0-60-120-180-240
              : -300
Tolerance    : + 0.30
Check
tolerance °NW : + 0.75
```

BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.35  
Tolerance mm :  $\pm 0.05$



<hr/>	
Del. quantity	
cm3/1000 strokes :	236.0
<hr/>	
Tolerance	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S. :	+ 4.0
<hr/>	
Spreed	
Tolerance	
cm3/1000 strokes :	8.0
<hr/>	
Check tolerance	
cm3/1000S. :	12.0
<hr/>	
2nd speed rpm :	350
<hr/>	
Rack travel in mm :	4.70
Tolerance mm :	+ 0.30
Del. quantity	
cm3/1000 strokes :	19.0
Tolerance	
cm3/1000 strokes :	+ 3.0
Check tolerance	
cm3/1000S. :	+ 6.0
Spreed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

<hr/>	
control lever	
position degree :	- 3
Rated speed rpm :	800
<hr/>	
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
<hr/>	
governor spring	
pre-tension	
click setting x :	4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	700
Aneroid pressure	
hPa :	-

Del. quantity	
cm3/1000 strokes :	236.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Spreed	
Tolerance	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S. :	12.0

---

RATED SPEED

control lever	
position degree :	59.0
tolerance degree :	+ 4.0
<hr/>	
control lever	
position degree :	109.0
tolerance degree :	+ 4.0
<hr/>	
rack travel mm :	12.30
Rated speed rpm :	1095
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1150
Tolerance 1/min :	+ 15
<hr/>	
rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1300

---

LOW IDLE

control lever	
position degree :	76.0
tolerance degree :	+ 4.0
<hr/>	
control lever	
position degree :	25.0
tolerance degree :	+ 4.0

Setting point w/out bumper spring

Rated speed rpm :	350
rack travel mm :	4.20

Testing:

Rated speed rpm :	350
rack travel mm :	4.70
Tolerance mm :	+ 0.10
<hr/>	
rack travel mm :	2.00



Rated speed rpm : 460  
Tolerance 1/min : + 30  
Rated speed rpm : 100  
CRT mm min. : > 19.50

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.35  
Tolerance mm : + 0.05

Rated speed rpm : 1050  
rack travel mm : 13.35  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.35  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.40  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 440  
rack travel mm : 12.05  
Tolerance mm : + 0.05

Pressure hPa : 270  
rack travel mm : 11.00  
Tolerance mm : + 0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

C01

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.40  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402678813  
Injection pump  
Pump designation : PE8P120A720LS7125  
: -10  
EP type number : 0412628891  
Governor  
Governor design. : RSV350...1050P1A512  
: -2  
Governor no. : 0421833324  
Cust. part No. : 1305131

Customer spec. information  
Customer : SCANIA  
Motor : DS 14

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Tolerance bar : + 0.1  
Test nozzle holder  
assembly : 1688901019  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750015  
Outside diameter : 6.0

C02

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Check and set without ROBO diaphragm

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 2- 7- 3- 4  
: - 5- 6- 8

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.55  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 4.70  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

C03

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 48.0  
tolerance degree : ± 4.0

control lever  
position degree : 98.0  
tolerance degree : ± 4.0

rack travel mm : 12.50  
Rated speed rpm : 1095  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1250

##### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree : ± 4.0

control lever  
position degree : 18.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.20

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min : ± 30



Rated speed rpm : 100  
CRT mm min. : > 19.50

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

Pressure hPa : 365  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 215  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.50  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736801  
Injection pump  
Pump designation : PES6P110A120RS7186  
EP type number : 0412716800

Governor  
Governor design. : RQV350...1250PA924  
: -1K  
Governor no. : 0421815226

Cust. part No. :

Customer spec. information  
Customer : CDC  
Motor : 6BTA

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413047

Overflow quantity  
min. L/h : 165  
Tolerance L/h : ± 5.0

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 350

Rack travel in mm : 4.70  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1375

Rack travel in mm : 9.00  
Tolerance mm : + 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 60.0  
tolerance degree : + 4.0

rack travel mm : 9.50  
Rated speed rpm : 1295  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1375  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1480

##### LOW IDLE

control lever  
position degree : 15.0  
tolerance degree : + 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : + 0.10

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.55  
Tolerance mm : + 0.05

Rated speed rpm : 1100  
rack travel mm : 10.35  
Tolerance mm : + 0.05

Rated speed rpm : 900  
rack travel mm : 10.20  
Tolerance mm : + 0.10

Rated speed rpm : 650  
rack travel mm : 4.93  
Tolerance mm : + 4.93



---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 1250  
Pressure hPa : 900  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 6.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 200  
rack travel mm : 7.45  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 330  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

BREAKAWAY

Rack travel in mm : 9.50  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

---

LOW IDLE

Rated speed rpm : 350

C07

rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736855  
Injection pump  
Pump designation : PES6P120A120RS7206  
EP type number : 0412726835  
Governor  
Governor design. : RQV350...1100PA964  
Governor no. : 0421815425  
Cust. part No. : 3282061

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTA  
Power KW : 190.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
Prestroke mm : 3.60  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
4  
Phasing : 0-60-120-180-240  
Tolerance : -300  
Check  
tolerance °NW : + 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.23

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.00  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0



Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0
2nd speed rpm	: 350
Rack travel in mm	: 5.20
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 20.5
Tolerance	
cm3/1000 strokes	: + 3.0
Check tolerance	
cm3/1000S.	: + 5.0
Spread	
Tolerance	
cm3/1000 strokes	: 7.0
Check tolerance	
cm3/1000S.	: 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.36
Tolerance mm	: + 0.25
Rated speed rpm	: 1177
guide sleeve	
travel mm	: 8.80
Tolerance mm	: + 0.25
Rated speed rpm	: 828
guide sleeve	
travel mm	: 5.95
Tolerance mm	: + 0.25
Rated speed rpm	: 399
guide sleeve	
travel mm	: 1.98
Tolerance mm	: + 0.25
Rated speed rpm	: 449
guide sleeve	
travel mm	: 2.67

Tolerance mm	: + 0.25
Rated speed rpm	: 530
guide sleeve	
travel mm	: 3.46
Tolerance mm	: + 0.25
Rated speed rpm	: 1550
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1375
Rack travel in mm	: 11.00
Tolerance mm	: + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 156.0
Tolerance	
cm3/1000 strokes	: + 1.0
Check tolerance	
cm3/1000S.	: + 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 117.0
tolerance degree	: + 4.0
rack travel mm	: 11.00
Rated speed rpm	: 1165
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1285
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1400



---

## LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

### Testing:

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  6.70

---

## CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

## TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1400  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1100  
rack travel mm : 8.50

C10

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100

Pressure hPa : 770  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 530  
rack travel mm : 9.40  
Tolerance mm :  $\pm$  0.20

---

## START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  270  
Check  
speed 1/min :  $<$  290

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## BREAKAWAY

Rack travel in mm : 11.00  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5



---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 11.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736856  
Injection pump  
Pump designation : PES6P110A120RS7213  
EP type number : 0412716804  
Governor  
Governor design. : RQV350...1250PA964  
: -26K  
Governor no. : 0421815426  
Cust. part No. : 3282240

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 172.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1680750008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.40  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
Tolerance : + 0.10  
Check  
tolerance °NW : + 0.23

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 15.10  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.5



Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
2nd speed rpm	: 350
Rack travel in mm	: 5.70
Tolerance mm	: + 0.30
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 22.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 5.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 11.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve	
travel mm	: 1.94
Tolerance mm	: + 0.25
Rated speed rpm	: 1346
guide sleeve	
travel mm	: 8.44
Tolerance mm	: + 0.25
Rated speed rpm	: 840
guide sleeve	
travel mm	: 4.58
Tolerance mm	: + 0.25
Rated speed rpm	: 403
guide sleeve	
travel mm	: 2.53
Tolerance mm	: + 0.25
Rated speed rpm	: 450
guide sleeve	
travel mm	: 2.76

Tolerance mm	: + 0.25
Rated speed rpm	: 1620
guide sleeve	
travel mm	: 11.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1440
Rack travel in mm	: 9.00
Tolerance mm	: + 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1800
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 158.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever	
position degree	: 123.0
tolerance degree	: + 4.0
rack travel mm	: 15.30
Rated speed rpm	: 1325
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1480
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1600

LOW IDLE



control lever  
position degree : 70.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm : ± 0.10

Rated speed rpm : 250  
CRT mm min. : > 7.20

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 15.10  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 13.70  
Tolerance mm : ± 0.10

Rated speed rpm : 1250  
rack travel mm : 16.30  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 13.70  
Tolerance mm : ± 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1800  
rack travel mm : 16.30  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.05  
Tolerance mm : ± 0.20

Rated speed rpm : 1250

Pressure hPa : 450  
rack travel mm : 10.75  
Tolerance mm : ± 0.20

Pressure hPa : 1150  
rack travel mm : 14.35  
Tolerance mm : ± 0.05

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 280  
Check  
speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 157.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 15.30  
Rated speed rpm : 1325  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.50



Tolerance mm	: ±	0.50
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	162.0
Tolerance		
cm <sup>3</sup> /1000 strokes	: ±	20.0
Check tolerance		
cm <sup>3</sup> /1000S.	: ±	24.0

---

#### LOW IDLE

Rated speed rpm	:	350
rack travel mm	:	5.70
Tolerance mm	: ±	0.30
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	22.5
Tolerance		
cm <sup>3</sup> /1000 strokes	: ±	3.0
Check tolerance		
cm <sup>3</sup> /1000S.	: ±	5.0
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	7.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	11.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 12.12.94  
Test oil : ISO 4113  
Combination No. : 0402736857  
Injection pump  
Pump designation : PES6P110A120RS7263  
EP type number : 0412716808

Governor  
Governor design. : RQV350...1250PA964  
: -27K  
Governor no. : 0421815427

Cust. part No. : 3282462

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 154.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 1  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1440

Rack travel in mm : 9.00  
Tolerance mm : ± 3.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 63.0  
tolerance degree : ± 4.0

control lever  
position degree : 121.0

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tolerance degree : ± 4.0

rack travel mm : 13.50  
Rated speed rpm : 1310  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1450  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1600

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

control lever  
position degree : 17.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm : ± 0.10

Rated speed rpm : 250

CRT mm min. : > 6.50

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.85  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 12.40  
Tolerance mm : ± 0.10

Rated speed rpm : 1250  
rack travel mm : 14.50  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 11.65  
Tolerance mm : ± 0.15



---

# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 1250  
Pressure hPa : 1200  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

## MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1250  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1250

Pressure hPa : 570  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 775  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

---

## START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm3/1000 strokes : 154.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 116.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0

---

## BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1310  
Tolerance 1/min :  $\pm$  5

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm3/1000 strokes : 155.0  
Tolerance  
cm3/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm3/1000S. :  $\pm$  24.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 20.01.95  
Test oil : ISO 4113

Combination No. : 0402746918

Injection pump  
Pump designation : PES6P120A720LS7373  
EP type number : 0412726937

Governor  
Governor design. : RQ300/1100PA1013  
Governor no. : 0421801599

Cust. part No. : 0220743602

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM447 hLA  
Power KW : 220.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 600



Rack travel in mm : 13.80  
 Rack travel in mm : 13.80  
 Tolerance mm : + 0.10  
 Tolerance mm : + 0.10

---

Del. quantity  
 cm3/1000 strokes : 206.0

---

Tolerance  
 cm3/1000 strokes : + 1.0

---

Check tolerance  
 cm3/1000S. : + 4.0

---

Spread  
 Tolerance  
 cm3/1000 strokes : 5.0

---

Check tolerance  
 cm3/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30  
 Tolerance mm : + 0.30

Del. quantity  
 cm3/1000 strokes : 19.0

Tolerance  
 cm3/1000 strokes : + 3.0

Check tolerance  
 cm3/1000S. : + 6.0

Spread  
 Tolerance  
 cm3/1000 strokes : 8.0

Check tolerance  
 cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
 guide sleeve  
 travel mm : 1.50  
 Tolerance mm : + 0.10

Rated speed rpm : 1159  
 guide sleeve  
 travel mm : 6.35  
 Tolerance mm : + 0.10

Rated speed rpm : 1100  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : + 0.10

Rated speed rpm : 417  
 guide sleeve  
 travel mm : 4.48  
 Tolerance mm : + 0.10

Rated speed rpm : 510  
 guide sleeve  
 travel mm : 6.00  
 Tolerance mm : + 0.10

Rated speed rpm : 1320  
 guide sleeve  
 travel mm : 11.50  
 Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
 Tolerance mm : + 0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
 Aneroid pressure  
 hPa : -

Del. quantity  
 cm3/1000 strokes : 206.0

Tolerance  
 cm3/1000 strokes : + 1.0

Check tolerance  
 cm3/1000S. : + 4.0

Spread  
 Tolerance  
 cm3/1000 strokes : 5.0

Check tolerance  
 cm3/1000S. : 9.0

---

##### RATED SPEED

control lever  
 position degree : 98.0  
 tolerance degree : + 4.0

rack travel mm : 13.50  
 Rated speed rpm : 1153  
 Tolerance 1/min : + 8

rack travel mm : 4.00  
 Rated speed rpm : 1240  
 Tolerance 1/min : + 15

rack travel mm : 0.75  
 Tolerance mm : + 0.75



Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200  
CRT mm min. :  $>$  8.20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : 150  
rack travel mm : -2.10  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 350  
rack travel mm : -0.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 800  
rack travel mm : 0.20  
Tolerance mm :  $\pm$  0.10

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 222.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1153  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0



Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402746952  
  
Injection pump  
Pump designation : PES6P120A320RS7294  
EP type number : 0412726895  
  
Governor  
Governor design. : RQV275...1000PA1001  
                  : -2  
Governor no. : 0421813989  
  
Cust. part No. : CCEP-5136 66-214

Customer spec. information  
Customer : RVI  
Motor : MIDR 063540 N/3  
Power KW : 283.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2417413071  
  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004  
  
Test lines : 1680750089

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Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 19.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300

Tolerance : ± 0.30  
Check  
tolerance \*NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : -7.25



Tolerance mm :  $\pm$  0.30

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Rated speed rpm : 600

---

Rack travel in mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 300

Rack travel in mm : -8.20  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

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---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.66  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1086  
guide sleeve  
travel mm : 8.46  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 773  
guide sleeve  
travel mm : 6.09  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 343  
guide sleeve  
travel mm : 2.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 393  
guide sleeve  
travel mm : 2.99  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 490  
guide sleeve  
travel mm : 3.81  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1200

Rack travel in mm : 12.20  
Tolerance mm :  $\pm$  1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 290.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0



Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### RATED SPEED

control lever  
position degree : 301.0  
tolerance degree : + 4.0

rack travel mm : -1.00  
Rated speed rpm : 1070  
Tolerance 1/min : + 5

rack travel mm : -9.30  
Rated speed rpm : 1205  
Tolerance 1/min : + 15

rack travel mm : -12.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1350

#### LOW IDLE

control lever  
position degree : 247.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : -8.20  
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm max. : < -6.80

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 365

#### TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1000  
Tolerance mm : + 0.10

Rated speed rpm : 600

rack travel mm : -4.50  
Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : -3.80  
Tolerance mm : + 0.20

Rated speed rpm : 500

Pressure hPa : 240  
rack travel mm : -2.60  
Tolerance mm : + 0.20

Pressure hPa : 480  
rack travel mm : -0.75  
Tolerance mm : + 0.05

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 195  
Check  
speed 1/min : < 215

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
hPa : 1000



Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 7.0

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : -1.00  
Rated speed rpm : 1070  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : -8.20  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 24.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402746961  
  
Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0412726939  
  
Governor  
Governor design. : RQV350...1150PA1104  
: -2K  
Governor no. : 0421815372  
  
Cust. part No. : 0250741202

Customer spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power kW : 142.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 10.0  
  
Test nozzle holder  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004

Test lines : 1680750075  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

\*NW after s.o.d. : 3.0  
S.o.d. blocking  
Barrel no. : 1  
  
\*NW after s.o.d. : 3.0

## BASIC SETTING



Rated speed rpm	:	1150
<hr/>		
Rack travel in mm	:	14.50
Tolerance mm	:	± 0.05
<hr/>		
Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	285.0
<hr/>		
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	± 1.0
<hr/>		
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	± 4.0
<hr/>		
Speed	:	
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	8.0
<hr/>		
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	12.0
<hr/>		
2nd speed rpm	:	350
<hr/>		
Rack travel in mm	:	7.30
Tolerance mm	:	± 0.30
Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	13.0
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	± 3.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	± 6.0
Speed	:	
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	350
guide sleeve	:	
travel mm	:	1.84
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	1208
guide sleeve	:	
travel mm	:	9.41
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	836
guide sleeve	:	
travel mm	:	5.58
Tolerance mm	:	± 0.25

Rated speed rpm	:	367
guide sleeve	:	
travel mm	:	1.96
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	417
guide sleeve	:	
travel mm	:	2.46
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	510
guide sleeve	:	
travel mm	:	3.11
Tolerance mm	:	± 0.25
<hr/>		
Rated speed rpm	:	1480
guide sleeve	:	
travel mm	:	13.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever	:	
position degree	:	- 1
Rated speed rpm	:	1315
<hr/>		
Rack travel in mm	:	13.50
Tolerance mm	:	± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1150
Aneroid pressure	:	
hPa	:	1500
Del. quantity	:	
cm <sup>3</sup> /1000 strokes	:	285.0
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	± 1.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	± 4.0
Speed	:	
Tolerance	:	
cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance	:	
cm <sup>3</sup> /1000S.	:	12.0

RATED SPEED

control lever	:	
position degree	:	108.0
tolerance degree	:	± 4.0
<hr/>		
rack travel mm	:	13.50
Rated speed rpm	:	1195
Tolerance 1/min	:	± 5



rack travel mm : 4.00  
Rated speed rpm : 1320  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
CRT mm min. :  $>$  6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 14.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.65  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500

DO1

rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1150

Pressure hPa : 870  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 380  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  270  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 284.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -



Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 7.30  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 20.01.95  
Test oil : ISO 4113  
Combination No. : 0402746993  
Injection pump  
Pump designation : PES6P120A720LS7341  
EP type number : 0412726913  
Governor  
Governor design. : RQV350...1150PA1159  
Governor no. : 0421814099

Cust. part No. : 0250742302

Customer-spec. information  
Customer : MTU  
Motor : 6-R-183  
Power KW : 440.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 10.20  
Tolerance mm : ± 0.05



Del. quantity cm <sup>3</sup> /1000 strokes	: 273.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
2nd speed rpm	: 350
Rack travel in mm	: 4.10
Tolerance mm	: ± 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	: 17.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 6.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 350
guide sleeve travel mm	: 1.53
Tolerance mm	: ± 0.15
Rated speed rpm	: 1206
guide sleeve travel mm	: 8.35
Tolerance mm	: ± 0.20
Rated speed rpm	: 950
guide sleeve travel mm	: 5.78
Tolerance mm	: ± 0.25
Rated speed rpm	: 416
guide sleeve travel mm	: 2.77
Tolerance mm	: ± 0.25

Rated speed rpm	: 466
guide sleeve travel mm	: 3.35
Tolerance mm	: ± 0.25
Rated speed rpm	: 600
guide sleeve travel mm	: 3.83
Tolerance mm	: ± 0.25
Rated speed rpm	: 1308
guide sleeve travel mm	: 10.00
Tolerance mm	: ± 0.25
Rated speed rpm	: 1410
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1260
Rack travel in mm	: 13.00
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 800
Del. quantity cm <sup>3</sup> /1000 strokes	: 273.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.0
Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### RATED SPEED

control lever position degree	: 120.0
tolerance degree	: ± 4.0
rack travel mm	: 13.50
Rated speed rpm	: 1195
Tolerance 1/min	: ± 5



rack travel mm : 4.00  
Rated speed rpm : 1300  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.10  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 5.60

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 425

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : + 0.05

Rated speed rpm : 1150  
rack travel mm : 14.50  
Tolerance mm : + 0.10

Rated speed rpm : 800  
rack travel mm : 14.50  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 6.20  
Tolerance mm : + 0.10

Pressure hPa : 200  
rack travel mm : 6.55  
Tolerance mm : + 0.05

Pressure hPa : 400  
rack travel mm : 8.40  
Tolerance mm : + 0.10

Pressure hPa : 1300  
rack travel mm : 11.70  
Tolerance mm : + 0.05

Pressure hPa : 1700  
rack travel mm : 13.80  
Tolerance mm : + 0.10

---

#### START CUT-OUT

Rated speed rpm : > 220  
Check  
speed 1/min : > 200  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



---

#### BREAKAWAY

Rack travel in mm : 13.50  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 410.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113  
Combination No. : 0403274005  
Injection pump  
Pump designation : PES4MW100/720RS1519  
 : -2  
EP type number : 0413204017  
Governor  
Governor design. : RSV350...1200MWDA356  
Governor no. : 0420085231  
Cust. part No. : 0250740802

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 103.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1680750089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.90  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 126.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 4.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1400

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### RATED SPEED

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

rack travel mm : 12.90  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1400

#### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 3.90

#### Testing:

Rated speed rpm : 100

CRT mm min. : > 19.00

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 13.90  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm : ± 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1400  
rack travel mm : 13.90  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 11.10  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 600



rack travel mm : 13.10  
Tolerance mm : + 0.10  
  
Pressure hPa : 350  
rack travel mm : 11.60  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

#### BREAKAWAY

Rack travel in mm : 12.90  
Rated speed rpm : 1245  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

---

#### LOW IDLE

D09

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113  
  
Combination No. : 0403274006  
  
Injection pump  
Pump designation : PES4MW100/720RS1519  
: -3  
EP type number : 0413204018  
  
Governor  
Governor design. : RSV350...1200MW0A356  
: -1  
Governor no. : 0420085232  
  
Cust. part No. : 0250740702

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM364LA  
Power KW : 77.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1419992198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 1688901101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test Lines : 1680750089  
  
Outside diameter : 8.0

D10

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 21.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### RATED SPEED

control lever  
position degree : 96.0  
tolerance degree : ± 4.0

rack travel mm : 10.15  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1400

#### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.00

#### Testing:

Rated speed rpm : 100  
CRT mm min. : > 19.00

#### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.15  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 11.15  
Tolerance mm : ± 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.15  
Tolerance mm : ± 0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 250  
rack travel mm : 0.30



Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 71.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### BREAKAWAY

Rack travel in mm : 10.15  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

D12

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.95  
Test oil : ISO 4113  
Combination No. : 0403276009  
Injection pump  
Pump designation : PES6MM100/720RS1517  
: -2  
EP type number : 0413206019  
Governor  
Governor design. : RSV350...1200MWOA357  
Governor no. : 0420085233  
Cust. part No. : 0250740402

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 155.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1419992198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1688901101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1680750089  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Set pneumatic shutoff device to  
control-rod stop = 0.5...1.5 mm  
control-rod travel at 4.5 bar  
atmospheric pressure.

Test hydr. locking device for starting  
with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 21.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

##### RATED SPEED

control lever  
position degree : 108.0  
tolerance degree : ± 4.0

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1450

rack travel mm : 4.00  
Rated speed rpm : 1375

rack travel mm : 12.30  
Rated speed rpm : 1245  
Tolerance 1/min : ± 5

##### LOW IDLE

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 3.90

##### Testing:

rack travel mm : 2.00  
Rated speed rpm : 430

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 13.30  
Tolerance mm : ± 0.05

Rated speed rpm : 750  
rack travel mm : 13.30  
Tolerance mm : ± 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING



Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 3.00  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 300  
rack travel mm : 1.20  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1300  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.01.95  
Test oil : ISO 4113  
Combination No. : 0403476140  
Injection pump  
Pump designation : PES6MW100/720RS1129  
: -2  
EP type number : 0413406140  
Governor  
Governor design. : RSV350...1200MWA363  
Governor no. : 0420085246

Cust. part No. : 0260741902

Customer spec. information  
Customer : MB-NFZ  
Motor : OM 366 A  
Power KW : 114.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Set pneumatic shutoff device to  
control-rod stop = 0.5...1.5 mm  
control-rod travel at 4.5 bar  
atmospheric pressure.

Test hydr. locking device for starting  
with 800...1200 hPa air pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 10.95  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 84.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 84.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

D17

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### RATED SPEED

control lever  
position degree : 104.0  
tolerance degree : ± 4.0

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1450

rack travel mm : 4.00  
Rated speed rpm : 1340

rack travel mm : 9.90  
Rated speed rpm : 1248  
Tolerance 1/min : ± 8

##### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.15

##### Testing:

Rated speed rpm : 100  
CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 10.95  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 11.75  
Tolerance mm : ± 0.10

Rated speed rpm : 1000  
rack travel mm : 11.10  
Tolerance mm : ± 0.10

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING



Rated speed rpm : 500  
 Pressure hPa : 750  
 rack travel mm : 11.75  
 Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : 400  
 rack travel mm : 1.75  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 300  
 rack travel mm : 1.15  
 Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 750  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 79.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 7.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 46.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 88.0

Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  8.0

#### LOW IDLE

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.95  
Test oil : ISO 4113

Combination No. : 0403476141

Injection pump  
Pump designation : PES6MM100/72ORS1144  
EP type number : 0413406138

Governor  
Governor design. : RSV350...1300MWOA364  
Governor no. : 0420085247

Cust. part No. :

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM 366 LA  
Power KW : 127.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0681343009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1680750015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

Set pneumatic shutoff device to  
control-rod stop = 0.5...1.5 mm  
control-rod travel at 4.5 bar  
atmospheric pressure.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.65  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 82.0

Tolerance  
cm3/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

governor spring  
pre-tension  
click setting x : 4.20

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

##### RATED SPEED

control lever  
position degree : 107.0  
tolerance degree : + 4.0

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1445

rack travel mm : 10.60  
Rated speed rpm : 1343  
Tolerance 1/min : + 8

---

##### LOW IDLE

###### Testing:

Rated speed rpm : 350  
rack travel mm : 6.55  
Tolerance mm : + 0.35

rack travel mm : 2.00  
Rated speed rpm : 470  
Tolerance 1/min : + 30

Rated speed rpm : 100

CRT mm min. : > 19.00

---

##### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.65  
Tolerance mm : + 0.05

Rated speed rpm : 900  
rack travel mm : 11.95  
Tolerance mm : + 0.10

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5



Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.12.94  
Test oil : ISO 4113  
Combination No. : 0403486105  
Injection pump  
Pump designation : PES6MW100/321RS1231  
EP type number : 0413406225  
Governor  
Governor design. : RSV300...1100MWOA343  
:-1  
Governor no. : 0420085209  
Cust. part No. : 3-7263

Customer spec. information  
Customer : MAN  
Motor : D0826LE 522  
Power KW : 154.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1417413047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0681343009  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1680750008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0  
Prestroke mm : 3.55  
Tolerance mm : + 0.05  
test only : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
:-300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1  
S.o.d. blocking  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1075  
Rack travel in mm : 12.10  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0



Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.5
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 11.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: ± 0.35
governor spring	
pre-tension	
click setting x	: 5.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1075
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 144.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Spreed	

Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.5

##### RATED SPEED

control lever	
position degree	: 104.0
tolerance degree	: ± 4.0
rack travel mm	: 11.10
Rated speed rpm	: 1130
Tolerance 1/min	: ± 5
rack travel mm	: 4.00
Rated speed rpm	: 1220
Tolerance 1/min	: ± 15
rack travel mm	: 1.00
Tolerance mm	: ± 0.70
Rated speed rpm	: 1350
rack travel mm	: 4.00

##### LOW IDLE

control lever	
position degree	: 76.0
tolerance degree	: ± 4.0

##### Testing:

Rated speed rpm	: 300
rack travel mm	: 5.00
Tolerance mm	: ± 0.10
rack travel mm	: 2.00
Rated speed rpm	: 380
Tolerance 1/min	: ± 30
Rated speed rpm	: 100
CRT mm min.	: > 19.00

##### TORQUE CONTROL

Rated speed rpm	: 1075
rack travel mm	: 12.10
Tolerance mm	: ± 0.05
Rated speed rpm	: 900
rack travel mm	: 12.35
Tolerance mm	: ± 0.05



Rated speed rpm : 600  
 rack travel mm : 12.40  
 Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1000  
 rack travel mm : 12.40  
 Tolerance mm : + 0.10

##### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 500  
 rack travel mm : 9.45  
 Tolerance mm : + 0.05

Rated speed rpm : 500

Pressure hPa : 600  
 rack travel mm : 11.75  
 Tolerance mm : + 0.15

Pressure hPa : 150  
 rack travel mm : 9.75  
 Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 900  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 146.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 150.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 76.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0

---

#### BREAKAWAY

Rack travel in mm : 11.10  
 Rated speed rpm : 1130  
 Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 125.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 8.0

---

#### LOW IDLE

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 11.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 4.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.5



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
  
Combination No. : 0401846759  
  
Injection pump  
Pump designation : PE6P110A320RS3108Y  
EP type number : 0411816729  
  
Governor  
Governor design. : RQV250...1100PA920  
: -1  
Governor no. : 0421815778  
  
Cust. part No. : 469608 P03

Customer spec. information  
Customer : VOLVO-TRUCK  
Motor : THD100EC  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1457413010  
  
Inlet press. bar : 1.5  
Tolerance bar : + 0.1  
  
Test nozzle holder  
assembly : 0681343009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
  
Test lines : 1680750089  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 3.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.15  
Tolerance mm : + 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 139.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

2nd speed rpm : 250

Rack travel in mm : 5.30  
Tolerance mm : ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1175

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 139.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

rack travel mm : 10.15  
Rated speed rpm : 1165  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 12.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 150  
CRT mm min. : > 6.30

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 338

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 11.15  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.70  
Tolerance mm : ± 0.10

Rated speed rpm : 500

Pressure hPa : 470  
rack travel mm : 1.20



Tolerance mm :  $\pm$  0.10  
Pressure hPa : 260  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 10.15  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.01.95  
Test oil : ISO 4113  
  
Combination No. : 0401846760  
  
Injection pump  
Pump designation : PE6P110A320RS3108X  
EP type number : 0411816730  
  
Governor  
Governor design. : RQV250...1100PA920  
: -2  
Governor no. : 0421813779  
  
Cust. part No. : 469609-P07 RELEASED

Customer spec. information  
Customer : VOLVO-TRUCK  
Motor : THD102

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2417413046  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 0681343009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1680750089  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 9.70  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1175

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

control lever  
position degree : 116.0

E01

tolerance degree : ± 4.0

rack travel mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : ± 4.0

control lever  
position degree : 12.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 250  
rack travel mm : 5.30  
Tolerance mm : ± 0.10

Rated speed rpm : 150

CRT mm min. : > 6.30

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 330

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.35  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.50  
Tolerance mm : ± 0.15



Rated speed rpm : 500  
Pressure hPa : 760  
rack travel mm : 2.50  
Tolerance mm :  $\pm$  0.15  
  
Pressure hPa : 270  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.11.94

Test oil : ISO 4113

Combination No. : 0401846971

## Injection pump

Pump designation : PE6P110A32ORS3302Z

EP type number : 0411816789

## Governor

Governer design. : RQ300/1000PA1012-1

Governer no. : 0421801648

Cust. part No. : 1266367

## Customer-spec. information

Customer : DAF

Motor : LS 195 M

Power KW : 195.0

## TEST BENCH REQUIREMENTS

### Test oil inlet

temp. °C : 40

Tolerance °C : + 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Tolerance bar : + 0.1

### Overflow quantity

min. l/h : 150

Tolerance l/h : + 20.0

### Test nozzle holde assembly

: 1688901101

### Opening pressure

bar : 208.5

Tolerance bar : + 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

### (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : + 1.0

Prestroke mm : 3.75

Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 14.00

Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.30

Check

tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.95

Tolerance mm : + 0.05

### Del. quantity

cm3/1000 strokes : 166.0

### Tolerance

cm3/1000 strokes : + 1.0



---

Check tolerance cm <sup>3</sup> /1000S.	: + 3.5
--	---------

---

Spreed Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
--	-------

---

Check tolerance cm <sup>3</sup> /1000S.	: 7.5
--	-------

2nd speed rpm	: 300
---------------	-------

Rack travel in mm	: 7.50
Tolerance mm	: + 0.10

Del. quantity cm <sup>3</sup> /1000 strokes	: 30.0
--	--------

Tolerance cm <sup>3</sup> /1000 strokes	: + 2.5
--	---------

Check tolerance cm <sup>3</sup> /1000S.	: + 5.0
--	---------

Spreed Tolerance	
---------------------	--

cm <sup>3</sup> /1000 strokes	: 8.0
-------------------------------	-------

Check tolerance cm <sup>3</sup> /1000S.	: 11.0
--	--------

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve travel mm	: 2.07
Tolerance mm	: + 0.10

Rated speed rpm	: 1060
guide sleeve travel mm	: 6.35
Tolerance mm	: + 0.10

Rated speed rpm	: 1000
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10

Rated speed rpm	: 373
guide sleeve travel mm	: 5.01
Tolerance mm	: + 0.10

Rated speed rpm	: 440
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10

Rated speed rpm	: 1210
-----------------	--------

E04

---

guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 600
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Rack travel in mm	: 20.00
Tolerance mm	: + 0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure hPa	: -
-------------------------	-----

Del. quantity cm <sup>3</sup> /1000 strokes	: 166.0
--	---------

Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
--	---------

Check tolerance cm <sup>3</sup> /1000S.	: + 3.5
--	---------

Spreed Tolerance	
---------------------	--

cm <sup>3</sup> /1000 strokes	: 4.0
-------------------------------	-------

Check tolerance cm <sup>3</sup> /1000S.	: 7.5
--	-------

---

##### RATED SPEED

control lever position degree	: 97.0
tolerance degree	: + 4.0

rack travel mm	: 12.95
Rated speed rpm	: 1052
Tolerance 1/min	: + 8

rack travel mm	: 4.00
Rated speed rpm	: 1125
Tolerance 1/min	: + 15

rack travel mm	: 0.75
Tolerance mm	: + 0.75
Rated speed rpm	: 1250

---

##### LOW IDLE

control lever position degree	: 73.0
tolerance degree	: + 4.0

##### Testing:

Rated speed rpm	: 300
-----------------	-------



rack travel mm : ~ 6.00  
Tolerance mm : + 0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min : + 20

Rated speed rpm : 200  
  
CRT mm min. : > 10.00

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.95  
Tolerance mm : + 0.05  
  
Rated speed rpm : 1000  
rack travel mm : 13.95  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 13.95  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 12.20  
Tolerance mm : + 0.10

Rated speed rpm : 600

Pressure hPa : 480  
rack travel mm : 13.55  
Tolerance mm : + 0.05

Pressure hPa : 340  
rack travel mm : 12.60  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 126.0

Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 3.5

---

#### BREAKAWAY

Rack travel in mm : 12.95  
Rated speed rpm : 1052  
Tolerance 1/min : + 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : + 0.75  
Del. quantity  
cm3/1000 strokes : 350.0  
Tolerance  
cm3/1000 strokes : + 20.0  
Check tolerance  
cm3/1000S. : + 23.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 7.50  
Tolerance mm : + 0.10  
Del. quantity  
cm3/1000 strokes : 30.0  
Tolerance  
cm3/1000 strokes : + 2.5  
Check tolerance  
cm3/1000S. : + 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 11.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
  
Combination No. : 0401846989  
  
Injection pump  
Pump designation : PE6P110A320RS3108X  
EP type number : 0411816730  
  
Governor  
Governor design. : RQV250...1100PA920  
                  : -8  
Governor no. : 0421814104  
  
Cust. part No. : 425662  
                  : -P02 RELEASED

Customer spec. information  
Customer : VOLVO-TRUCK  
Motor : THD101,102,TD102  
Power kW : 197.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2417413046  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 0681343009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1680750089

E06

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700  
  
Rack travel in mm : 12.35  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0



---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.19  
Tolerance mm : + 0.25

Rated speed rpm : 1176  
guide sleeve  
travel mm : 8.29  
Tolerance mm : + 0.25

Rated speed rpm : 1090  
guide sleeve  
travel mm : 6.95  
Tolerance mm : + 0.25

Rated speed rpm : 387  
guide sleeve  
travel mm : 2.96  
Tolerance mm : + 0.25

Rated speed rpm : 437  
guide sleeve  
travel mm : 3.71  
Tolerance mm : + 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1175

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

RATED SPEED

control lever  
position degree : 65.0  
tolerance degree : + 4.0

control lever  
position degree : 119.0  
tolerance degree : + 4.0

rack travel mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

---

LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 12.0



tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.30  
Tolerance mm : + 0.10

Rated speed rpm : 150

CRT mm min. : > 6.30

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 330

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 12.35  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.50  
Tolerance mm : + 0.15

Rated speed rpm : 500

Pressure hPa : 760  
rack travel mm : 2.50  
Tolerance mm : + 0.15

Pressure hPa : 270  
rack travel mm : 0.25  
Tolerance mm : + 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 11.35  
Rated speed rpm : 1165  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm : + 0.15



# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
Combination No. : 0401846990  
Injection pump  
Pump designation : PE6P120A320RS3118  
EP type number : 0411826726  
Governor  
Governor design. : RQV250...1100PA920  
                  : -9  
Governor no. : 0421814105  
Cust. part No. : 425663-P0? (P03)

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : THD 102 KD  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2417413046  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1688901019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1680750075  
Outside diameter : 8.0

ED9

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.65  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.19  
Tolerance mm : + 0.25

Rated speed rpm : 1146  
guide sleeve  
travel mm : 7.80  
Tolerance mm : + 0.25

Rated speed rpm : 1081  
guide sleeve  
travel mm : 6.82  
Tolerance mm : + 0.25

Rated speed rpm : 387  
guide sleeve  
travel mm : 2.96  
Tolerance mm : + 0.25

Rated speed rpm : 437  
guide sleeve  
travel mm : 3.71  
Tolerance mm : + 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 62.0  
tolerance degree : + 4.0

control lever  
position degree : 117.0  
tolerance degree : + 4.0

rack travel mm : 12.25  
Rated speed rpm : 1135  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 9.0



tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 150  
CRT mm min. :  $>$  6.20

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 310

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 850  
rack travel mm : 3.70  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 160  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 12.25  
Rated speed rpm : 1135  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.15



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
Combination No. : 0401846991  
Injection pump  
Pump designation : PE6P110A320RS3108-1  
EP type number : 0411816757  
Governor  
Governor design. : RQV250...1100PA920  
: -10  
Governor no. : 0421814106  
Cust. part No. : 425823 P02 RELEASED

Customer spec. information  
Customer : VOLVO-TRUCK  
Motor : THD 102 KB  
Power KW : 212.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2417413046  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 0681343009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1680750089  
Outside diameter : 8.0

E12

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 14.30  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.0



Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.19  
Tolerance mm : + 0.25

Rated speed rpm : 1146  
guide sleeve  
travel mm : 7.81  
Tolerance mm : + 0.25

Rated speed rpm : 1081  
guide sleeve  
travel mm : 6.83  
Tolerance mm : + 0.25

Rated speed rpm : 387  
guide sleeve  
travel mm : 2.96  
Tolerance mm : + 0.25

Rated speed rpm : 437  
guide sleeve  
travel mm : 3.71  
Tolerance mm : + 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1175

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### RATED SPEED

control lever  
position degree : 63.0  
tolerance degree : + 4.0

control lever  
position degree : 120.0  
tolerance degree : + 4.0

rack travel mm : 13.30  
Rated speed rpm : 1135  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : + 4.0

control lever  
position degree : 11.0



tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 150

CRT mm min. :  $>$  6.70

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 330

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500

Pressure hPa : 980  
rack travel mm : 3.80  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 240  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.30  
Rated speed rpm : 1135  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.15



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.01.95

Test oil : ISO 4113

Combination No. : 0402646650

Injection pump

Pump designation : PE6P130A72ORS7354

EP type number : 0412636835

Governor

Governer design. : RGV300...950PA1002

: -2K

Governer no. : 0421815434

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FRANCE

Motor : 8210.42.4000

## TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1688901105

Opening pressure  
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

## BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 5.05

Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

S.o.d. blocking

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.05

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 277.0



Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0
2nd speed rpm	: 300
Rack travel in mm	: 4.70
Tolerance mm	: + 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 22.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 6.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.14
Tolerance mm	: + 0.20
Rated speed rpm	: 1006
guide sleeve	
travel mm	: 8.60
Tolerance mm	: + 0.15
Rated speed rpm	: 765
guide sleeve	
travel mm	: 6.13
Tolerance mm	: + 0.25
Rated speed rpm	: 520
guide sleeve	
travel mm	: 3.78
Tolerance mm	: + 0.25
Rated speed rpm	: 1340
guide sleeve	
travel mm	: 13.50

Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1195
Rack travel in mm	: 12.00
Tolerance mm	: + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure	
hPa	: 900
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 277.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 4.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

##### RATED SPEED

control lever	
position degree	: 115.0
tolerance degree	: + 4.0
rack travel mm	: 12.00
Rated speed rpm	: 995
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1110
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

##### LOW IDLE

control lever	
position degree	: 67.0
tolerance degree	: + 4.0

Testing:



Rated speed rpm : 300  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

rack travel mm :  $>$  2.00  
Rated speed rpm : 370  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200  
CRT mm min. :  $>$  5.70

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.30

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 950  
Pressure hPa : 900  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 950  
Pressure hPa : 320  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 610  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

#### START CUT-OUT

Rated speed rpm :  $>$  180

Check  
speed 1/min :  $>$  200  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### BREAKAWAY

Rack travel in mm : 12.00  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0



Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.02.95  
Test oil : ISO 4113  
  
Combination No. : 0402646657  
  
Injection pump  
Pump designation : PE6P130A320RS7368  
EP type number : 0412636836  
  
Governor  
Governor design. : RQV250...1125PA1210K  
Governor no. : 0421815460  
  
Cust. part No. : 866737  
                  : -P02 new value

Customer-spec. information  
Customer : PENTA  
Motor : TAMD 122 P  
Power KW : 426.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2417413077  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1680750015  
  
Outside diameter : 8.0

E19

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 6.20  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.50  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0



Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.5
Check tolerance	
cm <sup>3</sup> /1000S.	: + 5.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 11.0
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 25.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: + 6.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.93
Tolerance mm	: + 0.25
Rated speed rpm	: 1157
guide sleeve	
travel mm	: 11.17
Tolerance mm	: + 0.25
Rated speed rpm	: 823
guide sleeve	
travel mm	: 7.14
Tolerance mm	: + 0.25
Rated speed rpm	: 325
guide sleeve	
travel mm	: 2.31
Tolerance mm	: + 0.25
Rated speed rpm	: 375
guide sleeve	
travel mm	: 2.96
Tolerance mm	: + 0.25
Rated speed rpm	: 490

guide sleeve	
travel mm	: 3.90
Tolerance mm	: + 0.25
Rated speed rpm	: 1320
guide sleeve	
travel mm	: 13.50
Tolerance mm	: + 0.50

##### GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1200
Rack travel in mm	: 10.50
Tolerance mm	: + 1.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1125
Aneroid pressure	
hPa	: 2000
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 318.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.5
Check tolerance	
cm <sup>3</sup> /1000S.	: + 5.0
Spread	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 11.0

##### RATED SPEED

control lever	
position degree	: 70.0
tolerance degree	: + 4.0
control lever	
position degree	: 122.0
tolerance degree	: + 4.0
rack travel mm	: 10.50
Rated speed rpm	: 1165
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1235
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50



Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 16.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 260  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 200  
CRT mm min. :  $>$  5.60

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 330

---

#### TORQUE CONTROL

Rated speed rpm : 1125  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1125  
Pressure hPa : 2000  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500

rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1125

Pressure hPa : 1500  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 290  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 321.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 284.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### BREAKAWAY

Rack travel in mm : 10.50  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY



Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 25.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402646760  
  
Injection pump  
Pump designation : PE6P120A320LS7834  
                  : -10  
EP type number : 0412626853  
  
Governor  
Governor design. : RQ300/1050PA1030-23  
Governor no. : 0421801769  
  
Cust. part No. : 0260743502

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004

Test lines : 1680750075  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
  
Firing order : 6- 3- 5- 2- 4-  
                  : 1-  
  
Phasing : 0-60-120-180-240  
          : -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550  
  
Rack travel in mm : 14.80



Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.82  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.68  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 832  
guide sleeve  
travel mm : 6.09  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 421  
guide sleeve  
travel mm : 4.03  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1270  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 893  
guide sleeve  
travel mm : 6.26  
Tolerance mm :  $\pm$  0.10

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### RATED SPEED

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.80  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00



Rated speed rpm : 1195  
 Tolerance 1/min : + 15  
 rack travel mm : 0.75  
 Tolerance mm : + 0.75  
 Rated speed rpm : 1300

#### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
 rack travel mm : 5.20  
 Tolerance mm : + 0.10  
 rack travel mm : 2.00  
 Rated speed rpm : 405  
 Tolerance 1/min : + 20  
 Rated speed rpm : 200  
 CRT mm min. : > 7.00

#### TORQUE CONTROL

Rated speed rpm : 550  
 rack travel mm : 14.80  
 Tolerance mm : + 0.05  
 Rated speed rpm : 1050  
 rack travel mm : 14.80  
 Tolerance mm : + 0.10  
 Rated speed rpm : 700  
 rack travel mm : 14.80  
 Tolerance mm : + 0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
 Pressure hPa : 1000  
 rack travel mm : 14.80  
 Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 400

E25

rack travel mm : 10.80  
 Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 400  
 rack travel mm : 12.90  
 Tolerance mm : + 0.20

Pressure hPa : 600  
 rack travel mm : 14.15  
 Tolerance mm : + 0.20

#### START CUT-OUT

Rated speed rpm : > 100  
 Check  
 speed 1/min : > 80  
 Rated speed rpm : < 220  
 Check  
 speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 1050  
 Del. quantity  
 cm3/1000 strokes : 229.0  
 Tolerance  
 cm3/1000 strokes : + 3.0  
 Check tolerance  
 cm3/1000S. : + 6.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 8.0  
 Check tolerance  
 cm3/1000S. : 12.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm3/1000 strokes : 134.0  
 Tolerance  
 cm3/1000 strokes : + 1.0  
 Check tolerance  
 cm3/1000S. : + 4.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 8.0  
 Check tolerance  
 cm3/1000S. : 12.0

#### BREAKAWAY



Rack travel in mm : 13.80  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
Combination No. : 0402646761  
Injection pump  
Pump designation : PE6P120A320LS7834  
: -10  
EP type number : 0412626853  
Governor  
Governor design. : RQ300/1050PA1031-19  
Governor no. : 0421801768  
Cust. part No. : 0260743802

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413047  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Tolerance l/h : ± 10.0  
Test nozzle holde  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004

Test lines : 1680750075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
test only : ± 0.10  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
Firing order : 6- 3- 5- 2- 4-  
: 1-  
Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550  
Rack travel in mm : 14.80



Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.82  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.68  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 832  
guide sleeve  
travel mm : 6.09  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 421  
guide sleeve  
travel mm : 4.03  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1270  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 893  
guide sleeve  
travel mm : 6.26  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.80  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00



Rated speed rpm : 1195  
Tolerance 1/min : + 15  
  
rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm : + 0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min : + 20  
  
Rated speed rpm : 200  
  
CRT mm min. : > 5.30

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm : + 0.05  
  
Rated speed rpm : 1050  
rack travel mm : 14.80  
Tolerance mm : + 0.10  
  
Rated speed rpm : 700  
rack travel mm : 14.80  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 14.80  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400

FD1

rack travel mm : 10.80  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 400  
rack travel mm : 12.90  
Tolerance mm : + 0.20

Pressure hPa : 600  
rack travel mm : 14.15  
Tolerance mm : + 0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 229.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY



Rack travel in mm : 13.80  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm :  $\pm$  6.30  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402646762  
  
Injection pump  
Pump designation : PE6P120A320LS7834  
: -10  
EP type number : 0412626853  
  
Governor  
Governor design. : RQV300...1050PA1033  
: -18  
Governor no. : 0421814136  
  
Cust. part No. : 0260743602

Customer spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Lube oil : 1409918004

F03

Test Lines : 1680750075  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 5.55  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
  
Firing order : 6- 3- 5- 2- 4-  
: 1-  
  
Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550



Rack travel in mm : 14.80  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1108  
guide sleeve  
travel mm : 8.53  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 558  
guide sleeve  
travel mm : 4.53  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 608

guide sleeve  
travel mm : 5.03  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 820  
guide sleeve  
travel mm : 6.13  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1183  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1145

Rack travel in mm : 13.80  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5



rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 7.00

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm : + 0.05

Rated speed rpm : 1050  
rack travel mm : 14.80  
Tolerance mm : + 0.10

Rated speed rpm : 700  
rack travel mm : 14.80  
Tolerance mm : + 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 14.80  
Tolerance mm : + 0.05

#### MEASUREMENT

F05

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 10.80  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 400  
rack travel mm : 12.90  
Tolerance mm : + 0.20

Pressure hPa : 600  
rack travel mm : 14.15  
Tolerance mm : + 0.20

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 229.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY



Rack travel in mm : 13.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
Combination No. : 0402646763  
Injection pump  
Pump designation : PE6P120A320LS7834  
: -10  
EP type number : 0412626853  
Governor  
Governor design. : RQV300...1050PA1065  
: -2  
Governor no. : 0421814135  
Cust. part No. : 0260743702

Customer spec. information  
Customer : MB-NFZ  
Motor : OM401 LA  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1417413047  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Tolerance l/h : ± 10.0  
Test nozzle holder  
assembly : 1688901105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Lube oil : 1409918004

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Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550



Rack travel in mm : 14.80  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.13  
Tolerance mm : + 0.25

Rated speed rpm : 1108  
guide sleeve  
travel mm : 9.82  
Tolerance mm : + 0.25

Rated speed rpm : 370  
guide sleeve  
travel mm : 2.00  
Tolerance mm : + 0.25

Rated speed rpm : 420

guide sleeve  
travel mm : 2.49  
Tolerance mm : + 0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.87  
Tolerance mm : + 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1200

Rack travel in mm : 13.80  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 104.0  
tolerance degree : + 4.0

rack travel mm : 13.80  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 0.75



Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. :  $>$  8.10

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 400  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.20

---

#### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 229.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5



---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113

Combination No. : 0402646768

Injection pump  
Pump designation : PE6P120A320LS7837  
: -10  
EP type number : 0412626855

Governor  
Governor design. : RQ300/950PA971-12  
Governor no. : 0421801765

Cust. part No. : 0260741302

Customer spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

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Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.72  
Tolerance mm : ± 0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.34  
Tolerance mm : ± 0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 429  
guide sleeve  
travel mm : 4.46  
Tolerance mm : ± 0.10

Rated speed rpm : 580

guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 100.0  
tolerance degree : ± 4.0

rack travel mm : 14.10  
Rated speed rpm : 998  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1108  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1200

##### LOW IDLE



control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 435  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 200

CRT mm min. :  $>$  8.60

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1100  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 150  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.20

#### START CUT-OUT

Rated speed rpm :  $>$  190

Check  
speed 1/min :  $>$  170

Rated speed rpm :  $<$  220

Check  
speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

#### BREAKAWAY

Rack travel in mm : 14.10

Rated speed rpm : 998

Tolerance 1/min :  $\pm$  8

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0



Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113

Combination No. : 0402646772A

Injection pump  
Pump designation : PE6F120A320LS7846  
EP type number : 0412626865

Governor  
Governor design. : RQ300/1050PA1030-21  
Governor no. : 0421801758

Cust. part No. : 0250747102

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test Lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550



Rack travel in mm : 14.80  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.80  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 405  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  6.80

##### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05



Rated speed rpm : 1050  
rack travel mm : 14.80  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 14.80  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 11.30  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 400  
rack travel mm : 13.35  
Tolerance mm : + 0.20

Pressure hPa : 540  
rack travel mm : 14.20  
Tolerance mm : + 0.20

---

##### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 228.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1098  
Tolerance 1/min : + 8

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

##### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.01.95  
Test oil : ISO 4113

Combination No. : 0402646773A

Injection pump  
Pump designation : PE6P120A320LS7846  
EP type number : 0412626865

Governor  
Governor design. : RQV300...1050PA1033  
: -15  
Governor no. : 0421814120

Cust. part No. : 0250747202

Customer spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power Kw : 230.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 14.80



Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.30

Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1135

Rack travel in mm : 13.80  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm min. :  $>$  7.00

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

##### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.80



Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 400  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 540  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.20

---

START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 228.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.30  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113

Combination No. : 0402646785A

Injection pump  
Pump designation : PE6P120A320LS7869  
EP type number : 0412626887

Governor  
Governor design. : RQV300...1050PA1078K  
Governor no. : 0421815359

Cust. part No. : 9275445

---

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9406 TI  
Power KW : 300.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 165  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

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Test Lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 6- 3- 5- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

## BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0
2nd speed rpm	: 300
Rack travel in mm	: 6.00
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 35.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance cm <sup>3</sup> /1000S.	: + 6.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 300
guide sleeve travel mm	: 1.69
Tolerance mm	: + 0.25
Rated speed rpm	: 1117
guide sleeve travel mm	: 10.38
Tolerance mm	: + 0.25
Rated speed rpm	: 746
guide sleeve travel mm	: 6.20
Tolerance mm	: + 0.25
Rated speed rpm	: 353
guide sleeve travel mm	: 2.45
Tolerance mm	: + 0.25
Rated speed rpm	: 403
guide sleeve travel mm	: 3.18
Tolerance mm	: + 0.25
Rated speed rpm	: 450

guide sleeve travel mm	: 3.66
Tolerance mm	: + 0.25
Rated speed rpm	: 1320
guide sleeve travel mm	: 13.50
Tolerance mm	: + 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1185
Rack travel in mm	: 10.80
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 283.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

RATED SPEED

control lever position degree	: 121.0
tolerance degree	: + 4.0
rack travel mm	: 11.20
Rated speed rpm	: 1105
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: + 15
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1300

LOW IDLE



control lever  
position degree : 74.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 200

CRT mm min. : > 8.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.20  
Tolerance mm : ± 0.05

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm : ± 0.10

Rated speed rpm : 950  
rack travel mm : 12.10  
Tolerance mm : ± 0.10

Rated speed rpm : 600  
rack travel mm : 10.20  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1550  
rack travel mm : 12.20  
Tolerance mm : ± 0.05

##### MEASUREMENT

Pressure hPa : 850  
Rated speed rpm : 1050

rack travel mm : 11.20  
Tolerance mm : ± 0.05

Rated speed rpm : 1050

Pressure hPa : -  
rack travel mm : 9.20  
Tolerance mm : ± 0.10

Pressure hPa : 575  
rack travel mm : 9.50  
Tolerance mm : ± 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

Rated speed rpm : < 220

Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 297.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 273.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



---

## BREAKAWAY

Rack travel in mm : 11.20  
Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  5

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

## LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 30.01.95  
Test oil : ISO 4113

Combination No. : 0402646972

Injection pump  
Pump designation : PE6P120A320RS7218  
: -10  
EP type number : 0412626891

Governor  
Governor design. : RQV275...1000PA939  
: -2  
Governor no. : 0421813986

Cust. part No. : 1249381/4

Customer spec. information  
Customer : DAF  
Motor : WS 268 L  
Power KW : 268.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 105  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.35  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 14.95  
Tolerance mm : ± 0.05



<hr/>	
Del. quantity	
cm3/1000 strokes :	235.0
<hr/>	
Tolerance	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S. :	+ 4.0
<hr/>	
Speed	
Tolerance	
cm3/1000 strokes :	5.0
<hr/>	
Check tolerance	
cm3/1000S. :	9.0
<hr/>	
2nd speed rpm :	275
<hr/>	
Rack travel in mm :	6.00
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	17.0
Tolerance	
cm3/1000 strokes :	+ 3.0
Check tolerance	
cm3/1000S. :	+ 6.0
Speed	
Tolerance	
cm3/1000 strokes :	8.0
Check tolerance	
cm3/1000S. :	12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	275
guide sleeve	
travel mm :	1.34
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	1058
guide sleeve	
travel mm :	8.05
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	676
guide sleeve	
travel mm :	4.49
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	301
guide sleeve	
travel mm :	1.78
Tolerance mm :	+ 0.25

Rated speed rpm :	351
guide sleeve	
travel mm :	2.45
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	380
guide sleeve	
travel mm :	2.66
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1310
guide sleeve	
travel mm :	11.50
Tolerance mm :	+ 0.50

GUIDE SLEEVE POSITION

control lever	
position degree :	- 1
Rated speed rpm :	1125
<hr/>	
Rack travel in mm :	14.90
Tolerance mm :	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	850
Aneroid pressure	
hPa :	1000
Del. quantity	
cm3/1000 strokes :	235.0
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 4.0
Speed	
Tolerance	
cm3/1000 strokes :	5.0
Check tolerance	
cm3/1000S. :	9.0

RATED SPEED

control lever	
position degree :	120.0
tolerance degree :	+ 4.0
<hr/>	
rack travel mm :	13.80
Rated speed rpm :	1045
Tolerance 1/min :	+ 5
<hr/>	
rack travel mm :	4.00
Rated speed rpm :	1165
Tolerance 1/min :	+ 15



rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 175  
CRT mm min. : > 7.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 14.95  
Tolerance mm : + 0.05

Rated speed rpm : 1000  
rack travel mm : 14.95  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 14.95  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 12.10  
Tolerance mm : + 0.10

Rated speed rpm : 600

Pressure hPa : 490

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rack travel mm : 14.25  
Tolerance mm : + 0.05

Pressure hPa : 280  
rack travel mm : 12.90  
Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 13.80  
Rated speed rpm : 1045  
Tolerance 1/min : + 5

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 6.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.01.95  
Test oil : ISO 4113

Combination No. : 0402646974

Injection pump  
Pump designation : PE6P120A320RS7218  
: -10  
EP type number : 0412626891

Governor  
Governor design. : RQ275/1000PA936-2  
Governor no. : 0421801633

Cust. part No. : 1249597/4

Customer spec. information  
Customer : DAF  
Motor : WS 268 L  
Power KW : 268.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 105  
Tolerance L/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.35  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

## BASIC SETTING

Rated speed rpm : 850



Rack travel in mm : 14.95  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 275

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.62  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1047  
guide sleeve  
travel mm : 6.41  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 356

guide sleeve  
travel mm : 4.11  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1220  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 550

Rack travel in mm : 16.20  
Tolerance mm :  $\pm$  0.60

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.95  
Rated speed rpm : 1042  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1155  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.70



Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 175

CRT mm min. :  $>$  6.50

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 600  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600

Pressure hPa : 490  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 280  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.95  
Rated speed rpm : 1042  
Tolerance 1/min :  $\pm$  8

---

#### LOW IDLE

Rated speed rpm : 275  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402646989  
  
Injection pump  
Pump designation : PE6P120A320RS7230  
                              : -10Y  
EP type number : 0412626898  
  
Governor  
Governor design. : RQV250...1000PA990K  
Governor no. : 0421815274

Cust. part No. : i250708/2

---

Customer-spec. information  
Customer : DAF  
Motor : WS 315 L  
Power KW : 315.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Lube oil : 1409918004

Test lines : 1680750089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 14.50  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
                              : 4

Phasing : 0-60-120-180-240  
          : -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

---

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 1

---

## BASIC SETTING

Rated speed rpm : 980

---

Rack travel in mm : 14.55  
Tolerance mm : + 0.05

---



Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 250

Rack travel in mm : 5.90  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.53  
Tolerance mm : ± 0.20

Rated speed rpm : 1038  
guide sleeve  
travel mm : 9.73  
Tolerance mm : ± 0.15

Rated speed rpm : 686  
guide sleeve  
travel mm : 6.41  
Tolerance mm : ± 0.25

Rated speed rpm : 284  
guide sleeve  
travel mm : 2.27  
Tolerance mm : ± 0.25

Rated speed rpm : 334

G04

guide sleeve  
travel mm : 3.08  
Tolerance mm : ± 0.25

Rated speed rpm : 400  
guide sleeve  
travel mm : 3.92  
Tolerance mm : ± 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1130

Rack travel in mm : 13.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 120.0  
tolerance degree : ± 4.0

rack travel mm : 13.55  
Rated speed rpm : 1032  
Tolerance 1/min : ± 8

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min : ± 15

rack travel mm : 0.70



Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 150  
CRT mm min. :  $>$  7.00

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 14.55  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 980

G05

rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980

Pressure hPa : 760  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 350  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 286.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### BREAKAWAY

Rack travel in mm : 13.55  
Rated speed rpm : 1032  
Tolerance 1/min :  $\pm$  8

---

#### LOW IDLE

Rated speed rpm : 250  
rack travel mm : 5.90  
Tolerance mm :  $\pm$  0.10



Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0





# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402646996A  
  
Injection pump  
Pump designation : PE6P120A320LS7852  
EP type number : 0412626871  
  
Governor  
Governor design. : RQ300/1050PA1031-4  
Governor no. : 0421801656

Cust. part No. : 0230744702

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test Lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30

Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10



Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
Tolerance mm : + 0.10

---

GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : + 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

G08

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

RATED SPEED

control lever  
position degree : 100.0  
tolerance degree : + 4.0

rack travel mm : 14.10  
Rated speed rpm : 1098  
Tolerance 1/min : + 8

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 8.10

---

TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.10  
Tolerance mm : + 0.05

Rated speed rpm : 1050



rack travel mm : 15.10  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 400  
Pressure hPa : 1100  
rack travel mm : 15.10  
Tolerance mm : ± 0.05

MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm : ± 0.20

Rated speed rpm : 400

Pressure hPa : 150  
rack travel mm : 10.05  
Tolerance mm : ± 0.20

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm : ± 0.20

---

START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

BREAKAWAY

Rack travel in mm : 14.10  
Rated speed rpm : 1098  
Tolerance 1/min : ± 8

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113

Combination No. : 0402646997A

Injection pump  
Pump designation : PE6P120A320LS7852  
EP type number : 0412626871

Governor  
Governor design. : RGV300...950PA1033  
Governor no. : 0421814008

Cust. part No. : 0230744302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

G10

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550

Rack travel in mm : 15.10  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm : ± 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance

cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
Tolerance mm : ± 0.10

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1040

Rack travel in mm : 14.10  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance

cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 122.0  
tolerance degree : ± 4.0

rack travel mm : 14.10  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min : ± 15

rack travel mm : 0.70  
Tolerance mm : ± 0.70  
Rated speed rpm : 1200

##### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm : ± 0.10

Rated speed rpm : 200  
CRT mm min. : > 8.50

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

##### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.10



Tolerance mm :  $\pm$  0.05  
 Rated speed rpm : 950  
 rack travel mm : 15.10  
 Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
 Pressure hPa : 1100  
 rack travel mm : 15.10  
 Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
 Rated speed rpm : 400  
 rack travel mm : 9.15  
 Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 150  
 rack travel mm : 10.05  
 Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
 rack travel mm : 13.85  
 Tolerance mm :  $\pm$  0.20

##### START CUT-OUT

Rated speed rpm :  $>$  100  
 Check  
 speed 1/min :  $>$  80  
 Rated speed rpm :  $<$  220  
 Check  
 speed 1/min :  $<$  240

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1100  
 Rated speed rpm : 950  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 240.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 135.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

##### BREAKAWAY

Rack travel in mm : 14.10  
 Rated speed rpm : 995  
 Tolerance 1/min :  $\pm$  5

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 235.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  24.0

##### LOW IDLE

Rated speed rpm : 300  
 rack travel mm : 6.20  
 Tolerance mm :  $\pm$  0.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 19.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.01.95  
Test oil : ISO 4113

Combination No. : 0402646998A

Injection pump  
Pump designation : PE6P120A320LS7852  
EP type number : 0412626871

Governor  
Governor design. : RGV300...1050PA1033  
: -6  
Governor no. : 0421814009

Cust. part No. : 0230744602

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 LA  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 110  
Tolerance L/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1-

Phasing : 0-60-120-180-240  
: -300-360  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 550



Rack travel in mm : 15.10  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1140

Rack travel in mm : 14.10  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1190  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200  
CRT mm min. : > 8.60

##### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 350

##### TORQUE CONTROL



Rated speed rpm : 550  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1100  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

Pressure hPa : 150  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.20

---

##### START CUT-OUT

Rated speed rpm :  $>$  100  
Check  
speed 1/min :  $>$  80  
Rated speed rpm :  $<$  220  
Check  
speed 1/min :  $<$  240

---

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity,  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### BREAKAWAY

Rack travel in mm : 14.10  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

---

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

##### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 01.08.94  
Test oil : ISO 4113  
Combination No. : 0402648931  
Injection pump  
Pump designation : PE8P120A320LS7847-2  
EP type number : 0412628885  
Governor  
Governor design. : RQ300/950PA1032-10  
Governor no. : 0421801735

Cust. part No. : 0230741302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM402 LA  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

G17

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.55  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

## BASIC SETTING

Rated speed rpm : 550



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Rack travel in mm : 14.80  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.74  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.84  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 736

guide sleeve  
travel mm : 6.13  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 415  
guide sleeve  
travel mm : 3.82  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1160  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 833  
guide sleeve  
travel mm : 6.38  
Tolerance mm :  $\pm$  0.10

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### RATED SPEED

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.00  
Rated speed rpm : 998



Tolerance 1/min	: +	8
rack travel mm	:	4.00
Rated speed rpm	:	1085
Tolerance 1/min	: +	15
rack travel mm	:	0.75
Tolerance mm	: +	0.75
Rated speed rpm	:	1350

#### LOW IDLE

control lever position degree	:	73.0
tolerance degree	: +	4.0

#### Testing:

Rated speed rpm	:	300
rack travel mm	:	5.50
Tolerance mm	: +	0.10

rack travel mm	:	2.00
Rated speed rpm	:	420
Tolerance 1/min	: +	20

Rated speed rpm	:	200
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CRT mm min.	: >	7.50
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#### TORQUE CONTROL

Rated speed rpm	:	550
rack travel mm	:	14.80
Tolerance mm	: +	0.05

Rated speed rpm	:	950
rack travel mm	:	14.00
Tolerance mm	: +	0.10

Rated speed rpm	:	900
rack travel mm	:	14.10
Tolerance mm	: +	0.10

Rated speed rpm	:	875
rack travel mm	:	14.25
Tolerance mm	: +	0.10

Rated speed rpm	:	800
rack travel mm	:	14.75
Tolerance mm	: +	0.10

Rated speed rpm	:	400
rack travel mm	:	12.90
Tolerance mm	: +	0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm	:	400
Pressure hPa	:	1200
rack travel mm	:	14.80
Tolerance mm	: +	0.05

#### MEASUREMENT

Pressure hPa	:	-
Rated speed rpm	:	400
rack travel mm	:	10.60
Tolerance mm	: +	0.20

Rated speed rpm	:	400
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Pressure hPa	:	450
rack travel mm	:	12.90
Tolerance mm	: +	0.10

Pressure hPa	:	300
rack travel mm	:	11.90
Tolerance mm	: +	0.15

#### START CUT-OUT

Rated speed rpm	: >	100
Check speed 1/min	: >	80
Rated speed rpm	: >	220
Check speed 1/min	: >	240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	:	1200
Rated speed rpm	:	950
Del. quantity cm3/1000 strokes	:	214.0
Tolerance cm3/1000 strokes	: +	2.0
Check tolerance cm3/1000S.	: +	5.0
Spread Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0
Aneroid pressure hPa	:	450



Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.00  
Rated speed rpm : 998  
Tolerance 1/min : ± 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



**Note remarks**

Edition : 07.10.94  
Test oil : ISO 4113

Combination No. : 0402648981

Injection pump  
Pump designation : PE8P120A320LS7839  
: -10  
EP type number : 0412628855

Governor  
Governor design. : RQ300/950PA971-10  
Governor no. : 0421801754

Cust. part No. : 0250749002

Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar :  $\pm$  0.1

Tolerance l/h :  $\pm 10.0$

Test nozzle holde  
assembly : 1688901105

Opening pressure : 208.5  
Tolerance bar :  $\pm$  1.5

Lube oil : 1409918004

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

Test pressure bar : 31.0  
Tolerance bar :  $\pm$  1.0

```

Prestroke mm      :      5.05
Tolerance mm      :  +  0.05

```

test only : + 0.10

Rack travel in mm : 14.50  
Tolerance mm :  $\pm 0.50$

Firing order : 8-7-2-6-3  
: - 5-4-1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance :  $\pm 0.30$   
Check  
tolerance \*NW :  $\pm 0.75$

Time to cyl. no. : 8

Rated speed rpm : 550

Rack travel in mm : 15.20



Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.33  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 4.72  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 580  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600  
Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.20  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1105  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1250

##### LOW IDLE



control lever  
position degree : 76.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min : + 20

Rated speed rpm : 200

CRT mm min. : > 7.20

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm : + 0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 15.20  
Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm : + 0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.15  
Tolerance mm : + 0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 10.00  
Tolerance mm : + 0.20

Pressure hPa : 500

rack travel mm : 11.75  
Tolerance mm : + 0.20

#### START CUT-OUT

Rated speed rpm : > 100

Check  
speed 1/min : > 80

Rated speed rpm : < 220

Check  
speed 1/min : < 240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200

Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : 1200

Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 271.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### BREAKAWAY

Rack travel in mm : 14.20

Rated speed rpm : 998

Tolerance 1/min : + 5



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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 255.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.01.95  
Test oil : ISO 4113

Combination No. : 0402648985

Injection pump  
Pump designation : PE8P120A320LS7839  
: -10  
EP type number : 0412628855

Governor  
Governor design. : RQ300/1050PA993-10  
Governor no. : 0421801760

Cust. part No. : 0250749502

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Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

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## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

---

## BASIC SETTING

Rated speed rpm : 550

---

Rack travel in mm : 15.20



Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.34  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 271  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600  
Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 289.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 98.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.20  
Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1350

##### LOW IDLE



control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 350  
Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  5.50

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 15.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 15.20  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 400  
Pressure hPa : 1200  
rack travel mm : 15.20  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 500

rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.20

#### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

Rated speed rpm :  $<$  220

Check  
speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200

Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1200

Rated speed rpm : 1050

Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### BREAKAWAY

Rack travel in mm : 14.20

Rated speed rpm : 1098

Tolerance 1/min :  $\pm$  5



---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 5.20  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 26.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402648987  
  
Injection pump  
Pump designation : PE8P120A320LS7838  
: -10  
EP type number : 0412628854  
  
Governor  
Governor design. : RGV300...950PA1199  
: -2  
Governor no. : 0421814144  
  
Cust. part No. : 0250746202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 320.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : + 0.1  
  
Tolerance l/h : + 10.0  
  
Test nozzle holde  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
  
Lube oil : 1409918004

H01

Test Lines : 1680750075  
  
Outside diameter : 8.0  
  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.25  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50  
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 8

## BASIC SETTING

Rated speed rpm : 550



Rack travel in mm : 15.00  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm : + 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.29  
Tolerance mm : + 0.20

Rated speed rpm : 1012  
guide sleeve  
travel mm : 8.60  
Tolerance mm : + 0.15

Rated speed rpm : 567  
guide sleeve  
travel mm : 4.66  
Tolerance mm : + 0.25

Rated speed rpm : 617

guide sleeve  
travel mm : 5.23  
Tolerance mm : + 0.25

Rated speed rpm : 780  
guide sleeve  
travel mm : 6.31  
Tolerance mm : + 0.25

Rated speed rpm : 1092  
guide sleeve  
travel mm : 10.00  
Tolerance mm : + 0.25

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1045

Rack travel in mm : 14.00  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 122.0  
tolerance degree : + 4.0

rack travel mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min : + 5



rack travel mm : 4.00  
Rated speed rpm : 1105  
Tolerance 1/min : + 15

rack travel mm : 0.75  
Tolerance mm : + 0.75  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 82.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : 4.50  
Tolerance mm : + 0.10

Rated speed rpm : 200  
CRT mm min. : > 7.00

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm : + 0.05

#### MEASUREMENT

Rated speed rpm : 400  
  
Pressure hPa : -  
rack travel mm : 9.10

H03

Tolerance mm : + 0.15

Pressure hPa : 550  
rack travel mm : 13.70  
Tolerance mm : + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 190  
Check  
speed 1/min : > 170  
Rated speed rpm : < 220  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 995  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY



Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



**BOSCH INJ. PUMP TEST SPECIFICATIONS****Note remarks**

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402648993  
  
Injection pump  
Pump designation : PE8P120A320LS7838  
: -10  
EP type number : 0412628854  
  
Governor  
Governor design. : RQ300/950PA971-11  
Governor no. : 0421801764

Cust. part No. : 0260740202

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power kW : 320.0

---

**TEST BENCH REQUIREMENTS**

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

---

**REMARKS**

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

**BEGINNING OF DELIVERY**

Test pressure : 31.0  
Tolerance : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

**BEGINNING OF DELIVERY DIFFERENCE**

Time to cyl. no. : 8

---

**BASIC SETTING**

Rated speed rpm : 550

---



Rack travel in mm : 15.00  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.10  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.72  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1005  
guide sleeve  
travel mm : 6.34  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 451

guide sleeve  
travel mm : 4.76  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 580  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1190  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 550  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 254.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 98.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.75  
Rated speed rpm : 1200



---

## LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

### Testing:

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min : ± 30

Rated speed rpm : 200  
CRT mm min. : > 9.00

---

## TORQUE CONTROL

Rated speed rpm : 550  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

Rated speed rpm : 950  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 15.00  
Tolerance mm : ± 0.05

### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 400  
rack travel mm : 9.10  
Tolerance mm : ± 0.15

Rated speed rpm : 400

Pressure hPa : 250  
rack travel mm : 10.80  
Tolerance mm : ± 0.15

Pressure hPa : 550

H07

rack travel mm : 13.70  
Tolerance mm : ± 0.15

---

## START CUT-OUT

Rated speed rpm : > 190  
Check  
speed 1/min : > 170  
Rated speed rpm : > 220  
Check  
speed 1/min : > 240

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

## BREAKAWAY

Rack travel in mm : 14.00  
Rated speed rpm : 998  
Tolerance 1/min : ± 8

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100



Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.10  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113

Combination No. : 0402666800

Injection pump  
Pump designation : PE6P120A320/3LS7854  
: -2  
EP type number : 0412626935

Governor  
Governor design. : RSV600...1050POA826  
: -7  
Governor no. : 0421833453

Cust. part No. : 0240747002

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 441 LA  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : + 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

H09

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 5.25  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 20.50  
Tolerance mm : + 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.30  
Check  
tolerance °NW : + 0.75

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

## BASIC SETTING

Rated speed rpm : 1030



Rack travel in mm : 13.45  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 600

Rack travel in mm : 3.70  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030

H10

Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 87.0  
tolerance degree :  $\pm$  4.0

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

##### Testing:

Rated speed rpm : 600  
rack travel mm : 3.70  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 100

CRT mm min. : > 19.50

##### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

##### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.10



---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

## LOW IDLE

Rated speed rpm : 600  
rack travel mm : 3.70  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402678826  
  
Injection pump  
Pump designation : PE8P120A320LS7878  
EP type number : 0412628888  
  
Governor  
Governor design. : RSV400...1000P1A589  
Governor no. : 0421833449  
  
Cust. part No. : 9274608

---

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9308 TI  
Power KW : 330.0

---

### TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 10.0  
  
Test nozzle holder  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1680750075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

---

### REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

### BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
  
test only : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 8- 7- 2- 6  
                  : - 3- 5- 4  
  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

### BASIC SETTING

Rated speed rpm : 900  
  
Rack travel in mm : 13.30  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 259.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---



Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 400

Rack travel in mm : 4.60  
Tolerance mm : ± 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 259.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 98.0  
tolerance degree : ± 4.0

rack travel mm : 12.30  
Rated speed rpm : 940  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1000  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1160

rack travel mm : 4.00  
Rated speed rpm : 1020

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.40

##### Testing:

Rated speed rpm : 400  
rack travel mm : 4.60  
Tolerance mm : ± 0.20

rack travel mm : 2.00  
Rated speed rpm : 435  
Tolerance 1/min : ± 30

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 13.30  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 13.30  
Tolerance mm : ± 0.05

##### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING



Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 500  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 850  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 233.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### BREAKAWAY

Rack travel in mm : 12.30  
Rated speed rpm : 940  
Tolerance 1/min :  $\pm$  5

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.12.94  
Test oil : ISO 4113  
  
Combination No. : 0402736882  
  
Injection pump  
Pump designation : PES6P120A720/3LS7114  
: -14  
EP type number : 0412726927  
  
Governor  
Governor design. : RQ300/1050PA774-3  
Governor no. : 0421801451

Cust. part No. : 0210744502

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM447 LA  
Power KW : 265.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1680750075

H15

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

---

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

---

## BEGINNING OF DELIVERY DIFFERENCE

Time to cyl. no. : 6

---

## BASIC SETTING

Rated speed rpm : 600

---

Rack travel in mm : 14.10

Rack travel in mm : 14.10  
Tolerance mm : ± 0.10



Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

2nd speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 300  
guide sleeve  
travel mm : 2.13  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1136  
guide sleeve  
travel mm : 6.74  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 895  
guide sleeve  
travel mm : 6.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 404  
guide sleeve  
travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 949  
guide sleeve  
travel mm : 6.30  
Tolerance mm :  $\pm$  0.10

##### GUIDE SLEEVE POSITION

Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### RATED SPEED

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

rack travel mm : 13.20  
Rated speed rpm : 1103  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00



Rated speed rpm : 1180  
 Tolerance 1/min :  $\pm$  15  
 rack travel mm : 0.75  
 Tolerance mm :  $\pm$  0.75  
 Rated speed rpm : 1300

#### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
 rack travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
 Rated speed rpm : 380  
 Tolerance 1/min :  $\pm$  20

Rated speed rpm : 200

CRT mm min. :  $>$  8.20

#### TORQUE CONTROL

Rated speed rpm : 600  
 rack travel mm : 14.10  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
 rack travel mm : 14.30  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
 rack travel mm : 14.80  
 Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### MEASUREMENT

Pressure hPa : 300  
 rack travel mm : -2.10  
 Tolerance mm :  $\pm$  0.05

Pressure hPa : 500  
 rack travel mm : -0.50  
 Tolerance mm :  $\pm$  0.10

Pressure hPa : 1100  
 rack travel mm : 0.30  
 Tolerance mm :  $\pm$  0.05

Pressure hPa : 1200  
 rack travel mm : 0.60  
 Tolerance mm :  $\pm$  0.10

#### START CUT-OUT

Rated speed rpm :  $>$  100

Check  
 speed 1/min :  $>$  80

Rated speed rpm :  $<$  220

Check  
 speed 1/min :  $<$  240

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 1050

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 236.0

Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed  
 Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 700

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 247.5

Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed  
 Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
 hPa : -

Rated speed rpm : 500

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 147.0

Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0



Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### BREAKAWAY

Rack travel in mm : 13.20  
Rated speed rpm : 1103  
Tolerance 1/min : ± 8

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 23.01.95  
Test oil : ISO 4113

Combination No. : 0402746951

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0412726939

Governor  
Governor design. : RQV350...1150PA1074K  
Governor no. : 0421815355

Cust. part No. : 0240747902

Customer spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 127.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test Lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

°NW after s.o.d. : 3.0

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 3.0

## BASIC SETTING



Rated speed rpm : 1150

Rack travel in mm : 13.50  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 7.30  
Tolerance mm :  $\pm 0.30$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.84  
Tolerance mm :  $\pm 0.15$

Rated speed rpm : 1208  
guide sleeve  
travel mm : 9.41  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 836  
guide sleeve  
travel mm : 5.58  
Tolerance mm :  $\pm 0.25$

H20

Rated speed rpm : 367  
guide sleeve  
travel mm : 1.96  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 417  
guide sleeve  
travel mm : 2.46  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.11  
Tolerance mm :  $\pm 0.25$

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm 0.50$

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1310

Rack travel in mm : 12.50  
Tolerance mm :  $\pm 2.50$

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$   
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### RATED SPEED

control lever  
position degree : 112.0  
tolerance degree :  $\pm 4.0$

rack travel mm : 12.50  
Rated speed rpm : 1195



Tolerance 1/min : + 5  
rack travel mm : 4.00  
Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.50  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 13.45  
Tolerance mm : + 0.10

Rated speed rpm : 750  
rack travel mm : 12.80  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 12.45  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150

H21

Pressure hPa : 1500  
rack travel mm : 13.50  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.80  
Tolerance mm : + 0.15

Rated speed rpm : 1150

Pressure hPa : 650  
rack travel mm : 12.90  
Tolerance mm : + 0.05

Pressure hPa : 250  
rack travel mm : 11.40  
Tolerance mm : + 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0



Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.50  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 7.30  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.01.95  
Test oil : ISO 4113  
Combination No. : 0402746957  
Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0412726939  
Governor  
Governor design. : RQV350...1150PA1074  
: -2K  
Governor no. : 0421815367  
Cust. part No. : 0250741002

Customer spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power kW : 157.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

°NW after s.o.d. : 3.0  
S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 3.0



---

**BASIC SETTING**

Rated speed rpm : 1150

---

Rack travel in mm : 13.95  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

2nd speed rpm : 350

---

Rack travel in mm : 7.30  
Tolerance mm :  $\pm$  0.30

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

**(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR**

---

**GUIDE SLEEVE TRAVEL**

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.84  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 1208  
guide sleeve  
travel mm : 9.41  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 836

guide sleeve  
travel mm : 5.58  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 367  
guide sleeve  
travel mm : 1.96  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 417  
guide sleeve  
travel mm : 2.46  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.11  
Tolerance mm :  $\pm$  0.25

---

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

---

**GUIDE SLEEVE POSITION**

control lever  
position degree : - 1  
Rated speed rpm : 1310

---

Rack travel in mm : 12.95  
Tolerance mm :  $\pm$  2.50

---

---

**FULL LOAD DELIVERY AT FULL LOAD STOP**

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

---

**RATED SPEED**

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0



rack travel mm : 12.95  
Rated speed rpm : 1195  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 65.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.95  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 13.90  
Tolerance mm : + 0.10

Rated speed rpm : 750  
rack travel mm : 13.05  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 12.90  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 13.95  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.25  
Tolerance mm : + 0.15

Rated speed rpm : 1150

Pressure hPa : 800  
rack travel mm : 13.00  
Tolerance mm : + 0.05

Pressure hPa : 250  
rack travel mm : 10.75  
Tolerance mm : + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 276.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0



Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.95  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 7.30  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.01.95  
Test oil : ISO 4113

Combination No. : 0402746960

Injection pump  
Pump designation : PES6P120A720RS7292  
: -1  
EP type number : 0412726939

Governor  
Governor design. : RQV350...1150PA1104  
: -1K  
Governor no. : 0421815371

Cust. part No. : 0250741302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 157.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1417413025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Lube oil : 1409918004

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.30

Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

°NW after s.o.d. : 3.0

S.o.d. blocking  
Barrel no. : 1

°NW after s.o.d. : 3.0



---

### BASIC SETTING

Rated speed rpm : 1150

---

Rack travel in mm : 13.95  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

2nd speed rpm : 350

Rack travel in mm : 7.30  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.84  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1208  
guide sleeve  
travel mm : 9.41  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 836

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guide sleeve  
travel mm : 5.58  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 367  
guide sleeve  
travel mm : 1.96  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 417  
guide sleeve  
travel mm : 2.46  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.11  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1340

Rack travel in mm : 12.95  
Tolerance mm :  $\pm$  2.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### RATED SPEED

control lever  
position degree : 108.0  
tolerance degree :  $\pm$  4.0



rack travel mm : 12.95  
Rated speed rpm : 1195  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.95  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 13.90  
Tolerance mm : + 0.10

Rated speed rpm : 750  
rack travel mm : 13.05  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 12.90  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 13.95  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.25  
Tolerance mm : + 0.15

Rated speed rpm : 1150

Pressure hPa : 800  
rack travel mm : 13.00  
Tolerance mm : + 0.05

Pressure hPa : 250  
rack travel mm : 10.75  
Tolerance mm : + 0.15

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 276.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0



Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.95  
Rated speed rpm : 1195  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.00  
Tolerance mm : + 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 7.30  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.01.95  
Test oil : ISO 4113  
  
Combination No. : 0402746962  
  
Injection pump  
Pump designation : PES6P120A72ORS7292  
: -1  
EP type number : 0412726939  
  
Governor  
Governor design. : RGV350...1150PA1104  
: -3K  
Governor no. : 0421815373  
  
Cust. part No. : 0250741102

Customer spec. information  
Customer : MB-NFZ  
Motor : OM366LA  
Power KW : 127.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1417413047  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Overflow quantity  
min. l/h : 100  
Tolerance l/h : ± 10.0  
  
Test nozzle holder  
assembly : 1688901105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

J03

Lube oil : 1409918004  
  
Test lines : 1680750075  
  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

°NW after s.o.d. : 3.0  
S.o.d. blocking  
Barrel no. : 1  
  
°NW after s.o.d. : 3.0

## BASIC SETTING



Rated speed rpm	:	1150
<hr/>		
Rack travel in mm	:	13.50
Tolerance mm	:	+ 0.05
<hr/>		
Del. quantity cm <sup>3</sup> /1000 strokes	:	272.0
<hr/>		
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
<hr/>		
Spreed Tolerance cm <sup>3</sup> /1000 strokes	:	8.0
<hr/>		
Check tolerance cm <sup>3</sup> /1000S.	:	12.0
<hr/>		
2nd speed rpm	:	350
<hr/>		
Rack travel in mm	:	7.30
Tolerance mm	:	+ 0.30
Del. quantity cm <sup>3</sup> /1000 strokes	:	13.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 3.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 6.0
<hr/>		
Spreed Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	:	350
guide sleeve travel mm	:	1.84
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1208
guide sleeve travel mm	:	9.41
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	836
guide sleeve travel mm	:	5.58
Tolerance mm	:	+ 0.25

Rated speed rpm	:	367
guide sleeve travel mm	:	1.96
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	417
guide sleeve travel mm	:	2.46
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	510
guide sleeve travel mm	:	3.11
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1480
guide sleeve travel mm	:	13.50
Tolerance mm	:	+ 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1310
<hr/>		
Rack travel in mm	:	12.50
Tolerance mm	:	+ 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1150
Aneroid pressure hPa	:	1500
Del. quantity cm <sup>3</sup> /1000 strokes	:	272.0
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.0
Check tolerance cm <sup>3</sup> /1000S.	:	+ 4.0
<hr/>		
Spreed Tolerance cm <sup>3</sup> /1000 strokes	:	8.0
Check tolerance cm <sup>3</sup> /1000S.	:	12.0

##### RATED SPEED

control lever position degree	:	109.0
tolerance degree	:	+ 4.0
<hr/>		
rack travel mm	:	12.50
Rated speed rpm	:	1195



Tolerance 1/min : + 5  
rack travel mm : 4.00  
Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree : + 4.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 250  
CRT mm min. : > 6.50

---

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.50  
Tolerance mm : + 0.05

Rated speed rpm : 950  
rack travel mm : 13.45  
Tolerance mm : + 0.10

Rated speed rpm : 750  
rack travel mm : 12.80  
Tolerance mm : + 0.10

Rated speed rpm : 600  
rack travel mm : 12.45  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1150

J05

Pressure hPa : 1500  
rack travel mm : 13.50  
Tolerance mm : + 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 1150  
rack travel mm : 10.80  
Tolerance mm : + 0.15

Rated speed rpm : 1150

Pressure hPa : 650  
rack travel mm : 12.90  
Tolerance mm : + 0.05

Pressure hPa : 250  
rack travel mm : 11.40  
Tolerance mm : + 0.10

---

#### START CUT-OUT

Rated speed rpm : > 100  
Check  
speed 1/min : > 80  
Rated speed rpm : < 270  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 269.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 262.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 6.0



Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### BREAKAWAY

Rack travel in mm : 12.50  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.50  
Tolerance mm : ± 0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 350  
rack travel mm : 7.30  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.95  
Test oil : ISO 4113  
Combination No. : 0402945301  
Injection pump  
Pump designation : PES5P120A720LS8511  
EP type number : 0412925201  
Governor  
Governor design. : RQV325...950PA1154K  
Governor no. : 0421815976

Cust. part No. : 0240749302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM449 LA  
Power KW : 216.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2417413082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 90  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1688901105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Lube oil : 1409918004

J07

Test lines : 1680750075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.85  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 14.50  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## BEGINNING OF DELIVERY DIFFERENCE

S.o.d. blocking  
Barrel no. : 5

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 3.90  
Tolerance mm : ± 0.20



<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	40.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 3.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 6.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	6.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	9.0
<hr/>	
Rated speed rpm :	950
<hr/>	
Rack travel in mm :	13.50
Tolerance mm :	+ 0.05
<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	389.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 6.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	10.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	14.0
<hr/>	
2nd speed rpm :	325
<hr/>	
Rack travel in mm :	4.70
Tolerance mm :	+ 0.30
<hr/>	
Del. quantity	
cm <sup>3</sup> /1000 strokes :	19.0
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	+ 3.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	+ 6.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm <sup>3</sup> /1000 strokes :	8.0
<hr/>	
Check tolerance	
cm <sup>3</sup> /1000S. :	14.0
<hr/>	

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm :	325
guide sleeve	
travel mm :	2.07
Tolerance mm :	+ 0.20
<hr/>	
Rated speed rpm :	1006
guide sleeve	
travel mm :	7.42
Tolerance mm :	+ 0.15
<hr/>	
Rated speed rpm :	800
guide sleeve	
travel mm :	4.86
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	345
guide sleeve	
travel mm :	2.33
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	395
guide sleeve	
travel mm :	2.76
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	510
guide sleeve	
travel mm :	3.21
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1169
guide sleeve	
travel mm :	12.00
Tolerance mm :	+ 0.25
<hr/>	
Rated speed rpm :	1250
guide sleeve	
travel mm :	13.50
Tolerance mm :	+ 0.50
<hr/>	

GUIDE SLEEVE POSITION

control lever	
position degree :	- 1
Rated speed rpm :	1160
<hr/>	
Rack travel in mm :	12.50
Tolerance mm :	+ 2.50
<hr/>	

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	950
-------------------	-----



Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 389.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

#### RATED SPEED

control lever  
position degree : 110.0  
tolerance degree : ± 4.0

rack travel mm : 12.50  
Rated speed rpm : 995  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1085  
Tolerance 1/min : ± 15

rack travel mm : 0.75  
Tolerance mm : ± 0.75  
Rated speed rpm : 1250

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.70  
Tolerance mm : ± 0.10

Rated speed rpm : 225

CRT mm min. : > 6.50

#### CONTINUOUS-ACTION CONTROL

Rated speed rpm : 375

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.50  
Tolerance mm : ± 0.05

Rated speed rpm : 850  
rack travel mm : 12.80  
Tolerance mm : ± 0.10

Rated speed rpm : 550  
rack travel mm : 11.20  
Tolerance mm : ± 0.10

Rated speed rpm : 400  
rack travel mm : 11.00  
Tolerance mm : ± 0.20

Rated speed rpm : 850  
rack travel mm : 10.80  
Tolerance mm : ± 0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 950  
Pressure hPa : 1200  
rack travel mm : 13.50  
Tolerance mm : ± 0.05

#### MEASUREMENT

Pressure hPa : -  
Rated speed rpm : 850  
rack travel mm : 8.10  
Tolerance mm : ± 0.20

Pressure hPa : -  
Rated speed rpm : 350  
rack travel mm : 7.30  
Tolerance mm : ± 0.20

Rated speed rpm : 950

Pressure hPa : 300  
rack travel mm : 9.30  
Tolerance mm : ± 0.20

Pressure hPa : 600  
rack travel mm : 10.80  
Tolerance mm : ± 0.20

#### START CUT-OUT

Rated speed rpm : > 140  
Check  
speed 1/min : > 120



Rated speed rpm : < 245  
Check  
speed 1/min : < 265

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 382.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 7.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 372.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 8.0

Aneroid pressure  
hPa : 600  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 304.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

---

#### BREAKAWAY

Rack travel in mm : 12.50  
Rated speed rpm : 995  
Tolerance 1/min : + 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.00  
Tolerance mm : + 0.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 24.0

---

#### LOW IDLE

Rated speed rpm : 325  
rack travel mm : 4.70  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.01.95  
Test oil : ISO 4113

Combination No. : 0403476037

Injection pump  
Pump designation : PES6MW100/720RS1130  
EP type number : 0413406122

Governor  
Governor design. : RSV350...1300MWOA318  
Governor no. : 0420085052

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM 366 A  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.75  
Tolerance mm : ± 0.05

test only : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1280

Rack travel in mm : 11.10  
Tolerance mm : ± 0.10

Del. quantity  
cm3/1000 strokes : 78.0

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

Speed  
Tolerance  
cm3/1000 strokes : 3.5



Check tolerance cm <sup>3</sup> /1000S.	: 6.0
Del. quantity cm <sup>3</sup> /1000 strokes	: 11.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.5
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: + 0.35
governor spring pre-tension click setting x	: 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1280
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 78.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
Spread Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 6.0

#### RATED SPEED

control lever position degree	: 109.0
----------------------------------	---------

tolerance degree	: + 4.0
rack travel mm	: 10.00
Rated speed rpm	: 1325
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm	: 1395
Tolerance 1/min	: + 15
rack travel mm	: 1.00
Tolerance mm	: + 0.70
Rated speed rpm	: 1560

#### LOW IDLE

control lever position degree	: 79.0
tolerance degree	: + 4.0

#### Testing:

Rated speed rpm	: 350
rack travel mm	: 8.10
Tolerance mm	: + 0.10
rack travel mm	: 2.00
Rated speed rpm	: 100
CRT mm min.	: > 19.00

#### TORQUE CONTROL

Rated speed rpm	: 1280
rack travel mm	: 11.10
Tolerance mm	: + 0.10
Rated speed rpm	: 750
rack travel mm	: 11.75
Tolerance mm	: + 0.10
Rated speed rpm	: 825
rack travel mm	: 11.50
Tolerance mm	: + 0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa	: -
Rated speed rpm	: 750
Del. quantity cm <sup>3</sup> /1000 strokes	: 74.0



Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

#### BREAKAWAY

Rack travel in mm : 10.00  
Rated speed rpm : 1325  
Tolerance 1/min : ± 5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 31.01.95  
Test oil : ISO 4113

Combination No. : 0403476059

Injection pump  
Pump designation : PES6MW100/720RS1130  
EP type number : 0413406122

Governor  
Governor design. : RSV750...1250MWA325  
: -1  
Governor no. : 0420085112

Cust. part No. :

Customer spec. information  
Customer : MB-NFZ  
Motor : OM 366 A  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1419992198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1688901101

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1680750089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : + 1.0

Prestroke mm : 3.75  
Tolerance mm : + 0.05

test only : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1230

Rack travel in mm : 10.95  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1230  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### RATED SPEED

control lever  
position degree : 100.0  
tolerance degree : ± 4.0

rack travel mm : 1.00  
Tolerance mm : ± 0.70  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1315

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 750  
rack travel mm : 5.65  
Tolerance mm : ± 0.15

rack travel mm : 2.00

Rated speed rpm : 100

CRT mm min. : > 19.00

##### TORQUE CONTROL

Rated speed rpm : 1230  
rack travel mm : 10.95  
Tolerance mm : ± 0.05

Rated speed rpm : 600  
rack travel mm : 10.95  
Tolerance mm : ± 0.10

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0



Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

LOW IDLE

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 30.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F1250R613  
Type number : 0 460 414 114  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8045.25.210

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800  
Setting value mm: 2.50...2.90  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 800  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 800  
Del. quantity cm3/  
> 1000S.: 67.00...68.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.5  
> 1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 325  
Del. quantity cm3/  
> 1000S.: 11.00...15.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.5  
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1325  
Del. quantity cm3/  
> 1000S.: 43.00...47.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 65.00...115.00  
mind> 1000S.: 90.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 700  
TD travel mm: 1.40...2.20  
> mm: (1.10...2.50)  
electromagnet>Volt: 12  
2nd speed 1/min: 1150  
TD travel mm: 6.00...6.80  
> mm: (5.70...7.10)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:



1st speed 1/min: 400  
 Supply-pump  
 pressure> bar: 3.70...4.30  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 800  
 Supply-pump  
 pressure> bar: 5.70...6.30  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 7.70...8.30  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.60...86.10  
 quantity> cm3/10s: (26.60...101.10)  
 2nd speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.00...138.80  
 quantity> cm3/10s: (40.00...153.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1420  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 2nd speed 1/min: 1325  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 43.00...47.00  
 > 1000S.: (39.00...51.00)  
 3rd speed 1/min: 1300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 49.00...61.00  
 > 1000S.: -  
 4th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 58.00...61.00  
 > 1000S.: (56.00...63.00)  
 5th speed 1/min: 800  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 67.00...68.00  
 > 1000S.: (64.5...70.50)  
 6th speed 1/min: 400  
 Shutoff

electromagnet>Volt: 12  
 Del. quantity cm3/: 67.50...70.50  
 > 1000S.: (65.50...72.50)

Mech. shutoff:

1st speed 1/min: 1250  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 325  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 325  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 11.00...15.00  
 > 1000S.: (9.00...17.00)  
 Dispersion cm3/: 3.5  
 > 1000S.: (3.5)  
 2nd speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 45.00...75.00  
 > 1000S.: (45.00...75.00)  
 2nd speed 1/min: 150  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 75.00...125.00  
 > 1000S.: (75.00...125.00)

4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 65.00...115.00  
 > 1000S.: (65.00...115.00)

Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0



Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.5
MS	mm: 0.6...1.0
SVS max.	mm: 6.0
Ya	mm: 36.5...38.5
Yb	mm: 43.9...49.1

Remarks:

:  
:



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 02.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F125DR613-1  
Type number : 0 460 414 115  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8045.25.214

Power KW: 55  
Speed 1/min: 1250

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: 0.2  
> (from BDC):  $\pm 0.02(0.04)$

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 800

Setting value mm: 3.10...3.50  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 800  
Setting value bar: 4.70...5.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 52.50...53.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 3.5  
> 1000S.: (4.0)

Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 6.00...10.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 3.5  
> 1000S.: (3.5)

Full-load speed regulation

Speed 1/min: 1350  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 37.00...41.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 65.00...115.00  
min> 1000S.: 90.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500  
TD travel mm: 0.20...1.00  
> mm: (0.00...1.30)  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
TD travel mm: 6.90...7.50  
> mm: (6.50...7.90)  
Shutoff



electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 500

Supply-pump pressure> bar: 3.20...3.80

Shutoff

electromagnet>Volt: 12

2nd speed 1/min: 800

Supply-pump pressure> bar: 4.70...5.30

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 1250

Supply-pump pressure> bar: 6.90...7.50

Shutoff

electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 400

Shutoff

electromagnet>Volt: 12

Overflow : 41.60...86.10

quantity> cm3/10s: (26.60...101.10)

2nd speed 1/min: 1250

Shutoff

electromagnet>Volt: 12

Overflow : 55.00...138.80

quantity> cm3/10s: (40.00...153.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1450

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 0.00...3.00

> 1000S.: -

2nd speed 1/min: 1400

Shutoff

electromagnet Volt: 12

Del. quantity cm3/: 5.00...21.00

> 1000S.: -

3rd speed 1/min: 1350

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 37.00...41.00

> 1000S.: -

4th speed 1/min: 1250

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 50.50...53.50

> 1000S.: (49.00...55.50)

5th speed 1/min: 750

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 52.50...53.50

> 1000S.: (50.00...56.00)

6th speed 1/min: 400

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 48.50...51.50

> 1000S.: (46.50...53.50)

Mech. shutoff:

1st speed 1/min: 1250

Del. quantity cm3/: 0.00...3.00

> 1000S.: -

Shutoff

electromagnet>volt: 12

Electr. shutoff:

1st speed 1/min: 350

Del. quantity cm3/: 0.00...3.00

> 1000S.: -

Shutoff

electromagnet>volt: -

Idle delivery:

1st speed 1/min: 350

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 6.00...10.00

> 1000S.: (4.00...12.00)

Dispersion cm3/: 3.5

> 1000S.: (3.5)

2nd speed 1/min: 450

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 0.00...3.00

> 1000S.: -

Automatic starting fuel delivery:

1st speed 1/min: 250

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 40.00...60.00

> 1000S.: (40.00...60.00)

2nd speed 1/min: 150

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 75.00...125.00

> 1000S.: (75.00...125.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm3/: 65.00...115.00

> 1000S.: (65.00...115.00)

Shutoff electromagnet:



Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: -
KF	mm: 5.3...5.7
MS	mm: 1.4...1.8
SVS max.	mm: 4.6
Ya	mm: 37.9...39.9
Yb	mm: 44.1...49.1

Remarks:

:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 02.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F1900R444-1  
Type number : 0 460 414 116  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8040.47.3700

Power KW: 85  
Speed 1/min: 1900

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200

Charge press. hPa: 1000  
Setting value mm: 1.70...1.90  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200  
Charge press hPa: 1000  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 55.50...56.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550  
Del. quantity cm3/  
> 1000S.: 24.00...25.00  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 325  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 8.00...12.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 6.0  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 34.00...40.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 40.00...90.00  
mind> 1000S.: 65.00  
Shutoff  
electromagnet>Volt: 12



Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1400  
Charge press hPa: 1000  
Inj.-qty. cm3/  
difference> 1000S.: -25.0...28.0 \*  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1400  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: -0.1...0.3 \*  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press hPa: 1000  
TD travel mm: 1.70...1.90  
> mm: (1.10...2.50)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1600  
Charge press hPa: 1000  
TD travel mm: 3.90...4.70  
> mm: (3.60...5.00)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1900  
Charge press hPa: 1000  
TD travel mm: 4.50...5.30  
> mm: (4.20...5.60)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.80...4.40  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump

pressure> bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1900  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 8.20...8.80  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 75.00...119.40  
quantity> cm3/10s: (60.00...134.40)  
2nd speed 1/min: 1900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 97.20...180.50  
quantity> cm3/10s: (82.20...195.50)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700  
Charge-air pressure-setting  
point> hPa: 400  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 43.00...44.00  
> 1000S.: (39.50...47.50)  
2nd speed 1/min: 2280  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 2200  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 12.00...20.00  
> 1000S.: (10.00...22.00)  
4th speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 34.00...40.00  
> 1000S.: (32.50...41.50)  
5th speed 1/min: 1900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 56.00...61.00  
> 1000S.: (55.0...62.00)



6th speed 1/min: 1750  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.50...60.50  
 > 1000S.: (54.50...61.50)  
 7th speed 1/min: 1400  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.50...56.50  
 > 1000S.: (52.50...59.50)  
 8th speed 1/min: 1200  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 53.50...58.50  
 > 1000S.: (52.00...60.00)  
 9th speed 1/min: 700  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 52.50...61.50  
 > 1000S.: (51.50...62.50)  
 10th speed 1/min: 550  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 24.00...25.00  
 > 1000S.: (21.00...28.00)

#### Electr. shutoff:

1st speed 1/min: 325  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 325  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 8.00...12.00  
 > 1000S.: (6.00...14.00)  
 Dispersion cm3/: 6.5  
 > 1000S.: (6.5)  
 2nd speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -

#### Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1400

Charge press. hPa: 1000  
 Inj.-qty. cm3/ : -25.0.-31.0 "  
 difference> 1000S.: (-24.0.-32.0)"  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1000  
 Inj.-qty. cm3/: 0.0...3.0 z'  
 difference> 1000S.: -  
 Shutoff  
 electromagnet Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1400  
 Charge press. hPa: 1000  
 TD-travel : -0.7...-0.9 "  
 difference> mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1000  
 TD-travel : -1.0...-1.4 "

#### Automatic starting fuel delivery:

1st speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 14.00...30.00  
 > 1000S.: (14.00...30.00)

2nd speed 1/min: 200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.00...105.00  
 > 1000S.: (55.00...105.00)

4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 40.00...90.00  
 > 1000S.: (40.00...90.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation  
 K mm: 3.2...3.4  
 KF mm: KOT  
 MS1 mm: 1.5...1.8  
 SVS max. mm: -  
 LDA stroke mm: -  
 Ya mm: 37.9...39.9



Yb mm: 43.7...48.9

Remarks:

:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 31.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F1750R618  
Type number : 0 460 414 117  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8040.SC27.02 AIFO

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1400  
Charge press. hPa: 1200  
Setting value mm: 2.20...2.40  
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1400  
Charge press hPa: 1200  
Setting value bar: 6.90...7.50  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1000  
Charge press. hPa: 1200  
Del. quantity cm3/  
> 1000S.: 45.50...46.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550  
Del. quantity cm3/  
> 1000S.: 26.00...27.00  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 325  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 6.0  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1900  
Charge press hPa: 1200  
Del. quantity cm3/  
> 1000S.: 23.00...27.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 40.00...90.00  
mind> 1000S.: 65.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:



Speed 1/min: 1400  
 Charge press hPa: 1200  
 Inj.-qty. cm3/  
 difference> 1000S.: -19.0...21.0 \*  
 Shutoff  
 electromagnet>Volt: 12  
 SP press.-dif.measurement

1.Speed 1/min: 1400  
 Charge press hPa: 1200  
 Supply pump  
 pressure>  
 difference> bar: -0.1...0.3 \*  
 Shutoff  
 electromagnet Volt: 12

Inspection-pump test specifications  
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1250  
 Charge press hPa: 1200  
 TD travel mm: 1.10...1.70  
 > mm: (0.70...2.10)  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press hPa: 1200  
 TD travel mm: 2.20...2.40  
 > mm: (1.60...3.00)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1600  
 Charge press hPa: 1200  
 TD travel mm: 3.10...3.70  
 > mm: (2.70...4.10)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1750  
 Charge press hPa: 1200  
 TD travel mm: 3.80...4.40  
 > mm: (3.40...4.80)  
 Shutoff  
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800  
 Charge press. hPa: 1200  
 Supply-pump  
 pressure> bar: 4.20...4.80  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1200  
 Supply-pump  
 pressure> bar: 6.90...7.50  
 Shutoff  
 electromagnet>Volt: 12

3rd speed 1/min: 1750  
 Charge press. hPa: 1200  
 Supply-pump  
 pressure> bar: 8.40...9.00  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
 Charge press. hPa: 1200  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 75.00...119.40  
 quantity> cm3/10s: (60.00...134.40)  
 2nd speed 1/min: 1750  
 Charge press. hPa: 1200  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 97.20...180.50  
 quantity> cm3/10s: (82.20...195.50)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800  
 Charge-air pressure-setting  
 point> hPa: 350  
 LDA-stroke mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 39.00...40.00  
 > 1000S.: (36.00...43.00)  
 2nd speed 1/min: 2000  
 Charge press. hPa: 1200  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 3rd speed 1/min: 1900  
 Charge press. hPa: 1200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 23.00...27.00  
 > 1000S.: (20.50...29.50)  
 4th speed 1/min: 1825  
 Charge press. hPa: 1200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 38.00...46.00  
 > 1000S.: (36.00...48.00)  
 5th speed 1/min: 1750  
 Charge press. hPa: 1200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 45.50...50.50  
 > 1000S.: (44.5...51.50)  
 6th speed 1/min: 1000  
 Charge press. hPa: 1200  
 Shutoff



electromagnet>Volt: 12  
 Del. quantity cm3/: 46.50...47.50  
 > 1000S.: (43.50...50.50)  
 7th speed 1/min: 800  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 26.50...31.50  
 > 1000S.: (25.50...32.50)  
 8th speed 1/min: 800  
 Charge press. hPa: 1200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 44.50...53.50  
 > 1000S.: (43.50...54.50)  
 9th speed 1/min: 550  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 26.00...27.00  
 > 1000S.: (23.00...29.00)

#### Electr. shutoff:

1st speed 1/min: 325  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 325  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 10.00...14.00  
 > 1000S.: (8.00...16.00)  
 Dispersion cm3/: 6.5  
 > 1000S.: (6.5)  
 2nd speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1400  
 Charge press. hPa: 1200  
 Inj.-qty. cm3/ : -19.0.-25.0 "  
 difference> 1000S.: (-18.0.-26.0)"  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1200  
 Inj.-qty. cm3/: 0.0...3.0 z'  
 difference> 1000S.: -

K01

Shutoff  
 electromagnet Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1400  
 Charge press. hPa: 1200  
 TD-travel : -0.5...-0.7 "  
 difference> mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1200  
 TD-travel : -0.8...-1.6 "

#### Automatic starting fuel delivery:

1st speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 14.00...30.00  
 > 1000S.: (14.00...30.00)  
 2nd speed 1/min: 200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.00...105.00  
 > 1000S.: (55.00...105.00)  
 4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 40.00...90.00  
 > 1000S.: (40.00...90.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation	
K	mm: K1
KF	mm: -
MS1	mm: 1.3...1.6
SVS max.	mm: -
LDA stroke	mm: -
Ya	mm: 37.9...39.9
Yb	mm: 39.6...44.6

#### Remarks:

:  
 :  
 Ya = Distance between VE flange and  
 speed-control lever in idle  
 position  
 Measurement point = edge of control



Lever on drive end

$Y_b$  = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end





# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ROV  
Edition : 31.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F2250L619  
Type number : 0 460 414 118  
Customer Part-No. :

Customer-specific information  
Customer : ROVER

Engine : TCI-EM

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 54.00...56.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 116

Opening  
Pressure> bar: 207.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Start of delivery block  
Piston stroke mm: 0.55  
> mm: +0.02(0.06)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000  
Charge press. hPa: 1500  
Setting value mm: 7.20...7.60  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 1500  
Setting value bar: 6.70...7.30  
Shutoff  
electromagnet>Volt: 12

## Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 1500  
Del. quantity cm3/  
> 1000S.: 63.00...64.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.0  
> 1000S.: (4.0)

## Full-load del. w/out charge press.:

Speed 1/min: 700  
Del. quantity cm3/  
> 1000S.: 42.00...43.00  
Shutoff  
electromagnet>Volt: 12

## Low-idle speed regulation

Speed 1/min: 375  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 6.00...10.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 4.0  
> 1000S.: (4.5)

## Full-load speed regulation

Speed 1/min: 2580  
Charge press hPa: 1500  
Del. quantity cm3/  
> 1000S.: 18.00...22.00  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 89.0...91.0 "V"  
mind> 1000S.: 81.50  
Shutoff



electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
Charge press hPa: 1500  
TD travel mm: 6.20...7.00  
> mm: (5.70...7.50)

electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press hPa: 1500  
TD travel mm: 7.20...7.60  
> mm: (6.60...8.20)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1400  
Charge press hPa: 1500  
TD travel mm: 8.30...9.10  
> mm: (7.80...9.60)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 2000  
Charge press hPa: 1500  
TD travel mm: 9.50...10.10  
> mm: -

Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 2000  
Charge press. hPa: 1500  
TD travel mm: 0.0...0.6  
> mm: -

Timing valve Volt: 12

Shutoff

electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 800  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 6.40...7.00

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1400  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 7.20...7.80

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press. hPa: 1500  
Supply-pump  
pressure> bar: 6.70...7.30

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

K04

1st speed 1/min: 700  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.60...122.20  
quantity> cm<sup>3</sup>/10s: (26.60...137.20)  
2nd speed 1/min: 2000  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 63.80...175.00  
quantity> cm<sup>3</sup>/10s: (48.80...190.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1000  
Charge-air pressure-setting  
point> hPa: 500  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 52.00...53.00  
> 1000S.: (49.30...55.70)

2nd speed 1/min: 2650  
Charge press. hPa: 1500  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: -

3rd speed 1/min: 2580  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 18.00...22.00  
> 1000S.: (15.00...25.00)

4th speed 1/min: 2450  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 43.00...51.00  
> 1000S.: (41.00...53.00)

5th speed 1/min: 2000  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 58.50...62.50  
> 1000S.: -

6th speed 1/min: 1600  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 58.50...61.50  
> 1000S.: (56.50...63.50)

7th speed 1/min: 1250  
Charge press. hPa: 1500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 63.00...64.00



> 1000S.: (60.70...66.30)  
 8th speed 1/min: 1000  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 66.00...71.00  
 > 1000S.: (64.50...72.50)  
 9th speed 1/min: 700  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 42.00...43.00  
 > 1000S.: (39.30...45.70)

#### Electr. shutoff:

1st speed 1/min: 375  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 375  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 6.00...10.00  
 > 1000S.: (4.00...12.00)  
 Dispersion cm<sup>3</sup>/: 4.0  
 > 1000S.: (4.5)  
 2nd speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: -

#### Automatic starting fuel delivery:

1st speed 1/min: 320  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 25.00...65.00  
 > 1000S.: (25.00...65.00)

2nd speed 1/min: 100  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 85.00...135.00  
 > 1000S.: (85.00...135.00)

3rd speed 1/min: 100  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 49.0...51.0 "L"

K05

> 1000S.: (42.50...57.50)  
 4th speed 1/min: 100  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 89.0...91.0 "V"  
 > 1000S.: (81.50...98.50)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

##### Designation

K	mm: 3.2...3.4
KF	mm: KOT
MS	mm: -
SVS max.	mm: 3.5
Ya	mm: 35.8...39.8
Yb	mm: 55.1...64.9

#### Remarks:

:  
 :  
 Ya = Distance between VE flange and  
 speed-control lever in idle  
 position  
 Measurement point = edge of control  
 lever on drive end

Yb = Distance between VE flange and  
 speed-control lever in rated speed  
 position  
 Measurement point = edge of control  
 lever on distributor-head end

Starting delivery check  
 V = Speed-control lever in full-load  
 position

Starting delivery check  
 L = Speed-control lever in idle  
 position



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FOR  
Edition : 31.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F2000R624  
Type number : 0 460 414 119  
Customer Part-No. :

Customer-specific information  
Customer : FORD

Engine : 2.5 DI

Power KW: 57  
Speed 1/min: 2000

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 114

Opening  
Pressure> bar: 207.00...210.00

Perforated-plate  
diameter> mm: 0.4

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250

K06

Setting value mm: 2.60...2.80  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 6.90...7.50  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 25.30...25.70 F  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 425  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 6.00...8.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.0  
> 1000S.: (4.0)

Full-load speed regulation

Speed 1/min: 2200  
Del. quantity cm3/  
> 1000S.: 22.00...24.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.0  
> 1000S.: (4.0)

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 26.00...66.00  
mind> 1000S.: 26.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800  
TD travel mm: 0.50...1.30  
> mm: (0.20...1.60)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
TD travel mm: 2.60...2.80



> mm: (2.20...3.20)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 2000  
 TD travel mm: 4.90...5.70  
 > mm: (4.60...6.00)  
 Shutoff  
 electromagnet>Volt: 12  
  
 Supply-pump pressure characteristic:  
  
 1st speed 1/min: 500  
 Supply-pump  
 pressure> bar: 5.20...5.80  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1000  
 Supply-pump  
 pressure> bar: 6.40...7.00  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 6.90...7.50  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 2000  
 Supply-pump  
 pressure> bar: 8.6...9.2  
 Shutoff  
 electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 97.20...141.60  
 quantity> cm3/10s: (82.20...156.60)  
 2nd speed 1/min: 1950  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 115.2...184.70  
 quantity> cm3/10s: (100.2...199.70)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 2400  
 LDA-stroke mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...5.00  
 > 1000S.: -  
 2nd speed 1/min: 2200  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 22.0...24.0  
 > 1000S.: (19.0...28.0)  
 3rd speed 1/min: 2140

Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 26.50...32.50  
 > 1000S.: (23.50...35.50)  
 4th speed 1/min: 1950  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.8...38.2 D  
 > 1000S.: (34.50...39.50) D  
 5th speed 1/min: 1700  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 36.30...38.70  
 > 1000S.: (35.0...40.00)  
 6th speed 1/min: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 33.5...34.5 E  
 > 1000S.: (31.5...36.5) E  
 7th speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 25.3...25.7 F  
 > 1000S.: (22.5...28.5) F

#### Electr. shutoff:

1st speed 1/min: 425  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 425  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 6.00...8.00  
 > 1000S.: (3.00...11.00)  
 Dispersion cm3/: 3.0  
 > 1000S.: (4.0)  
 2nd speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: -

Part-load del.at 3rd inj.-qty.  
 terza fermo della portata  
 stop (EGR set)  
 scarico) (ARF)  
 gaz d'échappement-ARF)  
 Spacing mm: 20.0

1st speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12



Del. quantity cm<sup>3</sup>/: 20.8...21.8  
> 1000S.: (18.8...23.8)

Automatic starting fuel delivery:

1st speed 1/min: 480

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 19.00...29.00  
> 1000S.: (19.00...29.00)

2nd speed 1/min: 300

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 26.00...56.00  
> 1000S.: (26.00...56.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 26.00...66.00  
> 1000S.: (26.00...66.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 2.7...2.9
KF	mm: KOT
MS	mm: 1.6...2.0
Ya	mm: 42.8...45.8
Yb	mm: 59.5...71.5

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 31.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F1900R542-1  
Type number : 0 460 414 120  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8040.47.2200

Power KW: 85  
Speed 1/min: 1900

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200

Charge press. hPa: 1000  
Setting value mm: 1.70...1.90  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200  
Charge press hPa: 1000  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 55.50...56.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550  
Del. quantity cm3/  
> 1000S.: 24.00...25.00  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 325  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 8.00...12.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 6.0  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 34.00...41.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 40.00...90.00  
mind> 1000S.: 65.00  
Shutoff  
electromagnet>Volt: 12



Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1400  
Charge press hPa: 1000  
Inj.-qty. cm3/  
difference> 1000S.: -25.0...28.0 \*  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1400  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: -0.1...0.3 \*  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press hPa: 1000  
TD travel mm: 1.70...1.90  
> mm: (1.10...2.50)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1600  
Charge press hPa: 1000  
TD travel mm: 3.90...4.70  
> mm: (3.60...5.00)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1900  
Charge press hPa: 1000  
TD travel mm: 4.50...5.30  
> mm: (4.20...5.60)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.80...4.40  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump

pressure> bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1900  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 8.20...8.80  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 75.00...119.40  
quantity> cm3/10s: (60.00...134.40)  
2nd speed 1/min: 1900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 97.20...180.50  
quantity> cm3/10s: (82.20...195.50)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 700  
Charge-air pressure-setting  
point> hPa: 400  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 43.00...44.00  
> 1000S.: (39.50...47.50)  
2nd speed 1/min: 2280  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 2200  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 12.00...20.00  
> 1000S.: (10.00...22.00)  
4th speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 34.00...40.00  
> 1000S.: (32.50...41.50)  
5th speed 1/min: 1900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 56.00...61.00  
> 1000S.: (55.0...62.00)



6th speed 1/min: 1750  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.50...60.50  
 > 1000S.: (54.50...61.50)  
 7th speed 1/min: 1400  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.50...56.50  
 > 1000S.: (52.50...59.50)  
 8th speed 1/min: 1200  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 53.50...58.50  
 > 1000S.: (52.00...60.00)  
 9th speed 1/min: 700  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 52.50...61.50  
 > 1000S.: (51.50...62.50)  
 10th speed 1/min: 550  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 24.00...25.00  
 > 1000S.: (21.00...28.00)

#### Electr. shutoff:

1st speed 1/min: 325  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 325  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 8.00...12.00  
 > 1000S.: (6.00...14.00)  
 Dispersion cm3/: 6.5  
 > 1000S.: (6.5)  
 2nd speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: -

#### Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1400

Charge press. hPa: 1000  
 Inj.-qty. cm3/ : -25.0.-31.0 "  
 difference> 1000S.: (-24.0.-32.0)"  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1000  
 Inj.-qty. cm3/: 0.0...3.0 z'  
 difference> 1000S.: -  
 Shutoff  
 electromagnet Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1400  
 Charge press. hPa: 1000  
 TD-travel : -0.7...-0.9 "  
 difference> mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1000  
 TD-travel : -1.0...-1.4 '

#### Automatic starting fuel delivery:

1st speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 14.00...30.00  
 > 1000S.: (14.00...30.00)

2nd speed 1/min: 200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 55.00...105.00  
 > 1000S.: (55.00...105.00)

4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 40.00...90.00  
 > 1000S.: (40.00...90.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation  
 K mm: 3.2...3.4  
 KF mm: KOT  
 MS1 mm: 1.6...1.9  
 SVS max. mm: -  
 LDA stroke mm: -  
 Ya mm: 37.9...39.9



Yb mm: 43.7...48.9

Remarks:

:

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 30.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/11F1900R494-1  
Type number : 0 460 414 121  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8040.47.2585

Power KW: 85  
Speed 1/min: 1900

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1200

K13

Charge press. hPa: 1000  
Setting value mm: 1.70...1.90  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1200  
Charge press hPa: 1000  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1400  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 56.00...57.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 550  
Del. quantity cm3/  
> 1000S.: 24.00...25.00  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 325  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 8.00...12.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 6.0  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 2100  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 34.00...41.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 40.00...90.00  
mind> 1000S.: 65.00  
Shutoff  
electromagnet>Volt: 12



Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1400  
Charge press hPa: 1000  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: -25.0...28.0 \*  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1400  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: -0.1...0.3 \*  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press hPa: 1000  
TD travel mm: 1.70...1.90  
> mm: (1.10...2.50)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1600  
Charge press hPa: 1000  
TD travel mm: 3.90...4.70  
> mm: (3.60...5.00)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1900  
Charge press hPa: 1000  
TD travel mm: 4.50...5.30  
> mm: (4.20...5.60)  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.80...4.40  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1200  
Charge press. hPa: 1000  
Supply-pump

pressure> bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1900  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 8.20...8.80  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 75.00...119.40  
quantity> cm<sup>3</sup>/10s: (60.00...134.40)  
2nd speed 1/min: 1900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 97.20...180.50  
quantity> cm<sup>3</sup>/10s: (82.20...195.50)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700  
Charge-air pressure-setting  
point> hPa: 400  
LDA-stroke mm: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 43.00...44.00  
> 1000S.: (39.50...47.50)  
2nd speed 1/min: 2280  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: -  
3rd speed 1/min: 2200  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 12.00...20.00  
> 1000S.: (10.00...22.00)  
4th speed 1/min: 2100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.00...40.00  
> 1000S.: (32.50...41.50)  
5th speed 1/min: 1900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 56.00...61.00  
> 1000S.: (55.0...62.00)



6th speed 1/min: 1750  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 55.50...60.50  
 > 1000S.: (54.50...61.50)  
 7th speed 1/min: 1400  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 55.50...56.50  
 > 1000S.: (52.50...59.50)  
 8th speed 1/min: 1200  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 53.50...58.50  
 > 1000S.: (52.00...60.00)  
 9th speed 1/min: 700  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 52.50...61.50  
 > 1000S.: (51.50...62.50)  
 10th speed 1/min: 550  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 24.00...25.00  
 > 1000S.: (21.00...28.00)

#### Electr. shutoff:

1st speed 1/min: 325  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: -  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 325  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 8.00...12.00  
 > 1000S.: (6.00...14.00)  
 Dispersion cm<sup>3</sup>/: 6.5  
 > 1000S.: (6.5)  
 2nd speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: -

#### Load-dependent start of delivery:

Inj.-qty.dif.measurement:

1st speed 1/min: 1400

K15

Charge press. hPa: 1000  
 Inj.-qty. cm<sup>3</sup>/ : -25.0.-31.0 "  
 difference> 1000S.: (-24.0.-32.0)"  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1000  
 Inj.-qty. cm<sup>3</sup>/: 0.0...3.0 "  
 difference> 1000S.: -  
 Shutoff  
 electromagnet Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1400  
 Charge press. hPa: 1000  
 TD-travel : -0.7...-0.9 "  
 difference> mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1400  
 Charge press. hPa: 1000  
 TD-travel : -1.0...-1.4 "

#### Automatic starting fuel delivery:

1st speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 14.00...30.00  
 > 1000S.: (14.00...30.00)

2nd speed 1/min: 200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 55.00...105.00  
 > 1000S.: (55.00...105.00)

4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 40.00...90.00  
 > 1000S.: (40.00...90.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation  
 K mm: 3.2...3.4  
 KF mm: KOT  
 MS<sub>1</sub> mm: 1.6...1.9  
 SVS max. mm: -  
 LDA stroke mm: -  
 Ya mm: 37.9...39.9



Yb mm: 43.7...48.9

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Pump with slave plunger

Z = Absolute delivery



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : MWM  
Edition : 11.11.94  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/12F1300R566  
Type number : 0 460 424 103  
Customer Part-No. :

Customer-specific information  
Customer : MWM

Engine : 4.10T

### TEST BENCH REQUIREMENTS

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 207.00...210.00

Perforated-plate  
diameter> mm: 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000  
Charge press. hPa: 1600  
Setting value mm: 2.70...3.10  
Shutoff  
electromagnet>Volt: 12

K17

Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 1600  
Setting value bar: 5.60...6.20  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 800  
Charge press. hPa: 1600  
Del. quantity cm3/  
> 1000S.: 82.50...83.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 54.50...58.50  
Shutoff  
electromagnet>Volt: 12

Low-idle speed regulation

Speed 1/min: 375  
Charge press hPa: -  
Del. quantity cm3/  
> 1000S.: 13.50...17.50  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.5  
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1400  
Charge press hPa: 1600  
Del. quantity cm3/  
> 1000S.: 77.00...83.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm3/: 70.00...110.00  
mind> 1000S.: 70.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses



# Timing-device characteristic:

1st speed 1/min: 800  
 Charge press hPa: 1600  
 TD travel mm: 0.50...1.30  
 > mm: (0.20...1.60)  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1000  
 Charge press hPa: 1600  
 TD travel mm: 2.70...3.10  
 > mm: (2.20...3.60)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1300  
 Charge press hPa: 1600  
 TD travel mm: 3.90...4.70  
 > mm: (3.60...5.00)  
 Shutoff  
 electromagnet>Volt: 12

# Supply-pump pressure characteristic:

1st speed 1/min: 800  
 Charge press. hPa: 1600  
 Supply-pump pressure> bar: 4.80...5.40  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1000  
 Charge press. hPa: 1600  
 Supply-pump pressure> bar: 5.60...6.20  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1300  
 Charge press. hPa: 1600  
 Supply-pump pressure> bar: 6.70...7.30  
 Shutoff  
 electromagnet>Volt: 12

# Overflow quantity at overflow valve:

1st speed 1/min: 550  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 97.20...138.80  
 quantity> cm3/10s: (82.20...153.80)  
 2nd speed 1/min: 1300  
 Charge press. hPa: 1600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 111.10...194.4  
 quantity> cm3/10s: (96.10...209.40)

# Delivery-quant. and breakaway char.:

1st speed 1/min: 700

# Charge-air pressure-setting point> hPa: 600

LDA-stroke mm: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 69.50...73.50  
 > 1000S.: (67.00...76.00)  
 2nd speed 1/min: 1800  
 Charge press. hPa: 1600  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 3rd speed 1/min: 1600  
 Charge press. hPa: 1600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.00...42.00  
 > 1000S.: (25.00...45.00)  
 4th speed 1/min: 1400  
 Charge press. hPa: 1600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 77.00...83.00  
 > 1000S.: (74.00...86.00)  
 5th speed 1/min: 1300  
 Charge press. hPa: 1600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 88.50...92.50  
 > 1000S.: (87.00...94.00)  
 6th speed 1/min: 1000  
 Charge press. hPa: 1600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 82.00...88.00  
 > 1000S.: (80.00...90.00)  
 7th speed 1/min: 800  
 Charge press. hPa: 1600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 82.50...83.50  
 > 1000S.: (80.00...86.00)  
 8th speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 54.50...58.50  
 > 1000S.: (52.00...61.00)

# Electr. shutoff:

1st speed 1/min: 375  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -



Measurement point = edge of control  
lever on distributor-head end

Idle delivery:

1st speed 1/min: 375  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 13.50...17.50  
> 1000S.: (11.50...19.50)  
Dispersion cm<sup>3</sup>/: 3.5  
> 1000S.: (5.0)  
2nd speed 1/min: 300  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 33.0...41.0  
> 1000S.: (31.0...43.0)  
3rd speed 1/min: 450  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...6.00  
> 1000S.: (0.00...6.00)

Automatic starting fuel delivery:

1st speed 1/min: 250  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.00...65.00  
> 1000S.: (25.00...65.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: KOT  
MS1 mm: 1.0...1.3  
SVS max. mm: -  
LDA stroke mm: -  
Ya mm: 48.5...50.5  
Yb mm: 32.8...41.2

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 31.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1100R610  
Type number : 0 460 426 240  
Customer Part-No. :

Customer-specific information  
Customer : CDC

Engine : 6 BTA- 590 I

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0,5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: 0,3  
> (from BDC): +0,02(0,04)

Start of delivery block  
Piston stroke mm: 1,85  
> mm: +0,02(0,06)  
Outlet > : 0

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

K20

Speed 1/min: 900  
Charge press. hPa: 1000  
Setting value mm: 1.00...1.40  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 900  
Charge press hPa: 1000  
Setting value bar: 4.10...4.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 750  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 91.50...92.50  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 4.0  
> 1000S.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 43.50...44.50  
Shutoff  
electromagnet>Volt: 12

## Low-idle speed regulation

Speed 1/min: 375  
Del. quantity cm3/  
> 1000S.: 15.00...21.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 5.5  
> 1000S.: (7.0)

## Full-load speed regulation

Speed 1/min: 1160  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 61.00...67.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 65.00...105.00  
mind> 1000S.: 65.00  
Shutoff  
electromagnet>Volt: 12



# Inspection-pump test specifications Test specifications in parentheses

## Timing-device characteristic:

2nd speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 1.70...2.50  
> mm: (1.40...2.80)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 900  
Charge press hPa: 1000  
TD travel mm: 1.00...1.40  
> mm: (0.50...1.90)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 750  
Charge press hPa: 1000  
TD travel mm: 0.10...0.90  
> mm: (0.00...1.20)

Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 2.40...3.00

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 900  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 4.10...4.70

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1100  
Charge press. hPa: 1000  
Supply-pump pressure> bar: 5.00...5.60

Shutoff  
electromagnet>Volt: 12

## Overflow quantity at overflow valve:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.00...83.00  
quantity> cm3/10s: (26.00...98.00)

2nd speed 1/min: 1100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.00...139.00  
quantity> cm3/10s: (40.00...154.00)

## Delivery-quant. and breakaway char.:

1st speed 1/min: 700\*  
Charge-air pressure-setting point> hPa: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 76.50...77.50  
> 1000s.: (73.00...81.00)

2nd speed 1/min: 1270  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000s.: (0.00...3.00)

3rd speed 1/min: 1180  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 15.00...55.00  
> 1000s.: (15.00...55.00)

5th speed 1/min: 1160  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 61.00...67.00  
> 1000s.: (58.00...70.00)

9th speed 1/min: 1100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 77.50...80.50  
> 1000s.: (76.00...82.00)

10th speed 1/min: 900  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 82.00...86.00  
> 1000s.: (80.50...87.50)

12th speed 1/min: 750  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 91.50...92.50  
> 1000s.: (89.00...95.00)

18th speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 43.50...44.50  
> 1000s.: (40.00...48.00)

## Mech. shutoff:

1st speed 1/min: 1100  
Charge press. hPa: 1000  
Del. quantity cm3/: 0.0...3.0  
> 1000s.: (0.0...3.0)



## Electr. shutoff:

1st speed 1/min: 375  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

## Idle delivery:

1st speed 1/min: 375  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 15.00...21.00  
> 1000S.: (13.00...23.00)  
Dispersion cm<sup>3</sup>/: 5.5  
> 1000S.: (7.0)  
2nd speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...4.00  
> 1000S.: (0.00...4.00)

## Automatic starting fuel delivery:

1st speed 1/min: 250  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 65.00...115.00  
> 1000S.: (65.00...115.00)  
2nd speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 30.00...70.00  
> 1000S.: (30.00...70.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 65.00...105.00  
> 1000S.: (65.00...105.00)

## Shutoff electromagnet:

Cut-in  
>min voltage : 10,0  
Rated voltage : 12,0

## Mounting and assembly dimensions:

### Designation

K	mm: -
KF	mm: 5.0...5.4
MS1	mm: 1.34-1.59
Ya	mm: 34.8...38.8
Yb	mm: 45.8...51.2

### Remarks:

K22

: C.D.C # 391 6942

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER  
Edition : 31.01.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1250R556-1  
Type number : 0 460 426 241  
Customer Part-No. :

Customer-specific information  
Customer : PERKINS

Engine : Q20 PHASER 195TI

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0,5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 1,25  
> mm: +0,02(0,06)  
Outlet > : C

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 900  
Charge press. hPa: 1500  
Setting value mm: 1.70...1.90

Shutoff  
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 900  
Charge press hPa: 1500  
Setting value bar: 7.20...7.80  
Shutoff  
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 900  
Charge press. hPa: 1500  
Del. quantity cm3/  
> 1000S.: 91.00...92.00  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm3/  
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 60.00...61.00  
Shutoff  
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 280  
Del. quantity cm3/  
> 1000S.: 11.00...15.00  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm3/  
> 1000S.: (6.5)

Full-load speed regulation

Speed 1/min: 1400  
Charge press hPa: 1500  
Del. quantity cm3/  
> 1000S.: 42.00...48.00  
Shutoff  
electromagnet>Volt: 24

Start:

Speed 1/min: 100  
Del. quantity cm3/: 130.00...190.00  
mind> 1000S.: 130.0  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses



# Timing-device characteristic:

1st speed 1/min: 1250  
 Charge press hPa: 1500  
 TD travel mm: 2.90...3.70  
 > mm: (2.90...3.70)  
 electromagnet>Volt: 24  
 2nd speed 1/min: 1000  
 Charge press hPa: 1500  
 TD travel mm: 2.40...3.00  
 > mm: (2.00...3.40)  
 Shutoff  
 electromagnet>Volt: 24  
 3rd speed 1/min: 900  
 Charge press hPa: 1500  
 TD travel mm: 1.70...1.90  
 > mm: (1.20...2.40)  
 Shutoff  
 electromagnet>Volt: 24  
 4th speed 1/min: 800  
 Charge press hPa: 1500  
 TD travel mm: 0.50...1.10  
 > mm: (0.10...1.50)  
 Shutoff  
 electromagnet>Volt: 24

# Supply-pump pressure characteristic:

1st speed 1/min: 700  
 Charge press. hPa: 1500  
 Supply-pump pressure> bar: 6.10...6.70  
 Shutoff  
 electromagnet>Volt: 24  
 2nd speed 1/min: 900  
 Charge press. hPa: 1500  
 Supply-pump pressure> bar: 7.20...7.80  
 Shutoff  
 electromagnet>Volt: 24  
 3rd speed 1/min: 1250  
 Charge press. hPa: 1500  
 Supply-pump pressure> bar: 8.20...8.80  
 Shutoff  
 electromagnet>Volt: 24

# Overflow quantity at overflow valve:

1st speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 24  
 Overflow : 41.00...86.00  
 quantity> cm3/10s: (26.00...98.00)  
 2nd speed 1/min: 1100  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet>Volt: 24  
 Overflow : 55.00...139.00

quantity> cm3/10s: (40.00...154.00)

# Delivery-quant. and breakaway char.:

1nd speed 1/min: 700\*  
 Charge-air pressure-setting point> hPa: 700  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 83.50...84.50  
 > 1000S.: (80.50...87.50)  
 2nd speed 1/min: 1480  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 3rd speed 1/min: 1350  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 65.00...95.00  
 > 1000S.: (65.00...95.00)  
 5th speed 1/min: 1400  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 42.00...48.00  
 > 1000S.: (39.00...51.00)  
 9th speed 1/min: 1250  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 90.50...95.50  
 > 1000S.: (89.50...96.50)  
 10th speed 1/min: 700  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 89.00...95.00  
 > 1000S.: (88.00...96.00)  
 12th speed 1/min: 900  
 Charge press. hPa: 1500  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 91.00...92.00  
 > 1000S.: (88.00...95.00)  
 18th speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 60.00...61.00  
 > 1000S.: (57.00...64.00)

# Mech. shutoff:

1st speed 1/min: 1250  
 Charge press. hPa: 1500



Del. quantity cm<sup>3</sup>/: 0.0...3.0  
> 1000S.: (0.0...3.0)  
Shutoff  
electromagnet>volt: 24

Electr. shutoff:

1st speed 1/min: 280  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Idle delivery:

1st speed 1/min: 280  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 11.00...15.00  
> 1000S.: (7.00...19.00)  
Dispersion cm<sup>3</sup>/: 6.5  
> 1000S.: (6.5)  
2nd speed 1/min: 400  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)

Automatic starting fuel delivery:

1st speed 1/min: 130  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 130.00...190.00  
> 1000S.: (130.00...190.00)

2nd speed 1/min: 230  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 40.00...80.00  
> 1000S.: (40.00...80.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 130.00...190.00  
> 1000S.: (130.00...190.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: KOT  
MS1 mm: 1.21-1.46

K25

Ya mm: 37.2...39.2  
Yb mm: 44.9...53.5

Remarks:

⋮  
Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position  
Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
Measurement point = edge of control lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 01.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1350R623  
Type number : 0 460 426 242  
Customer Part-No. :

Customer-specific information  
Customer : IVECO-FIAT

Engine : 8060.45B.5100 (DI)

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 54.00...56.00  
Electronically> : -

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0,5

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 1,00  
> mm: +0,02(0,06)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000  
Charge press. hPa: 1000  
Setting value mm: 1.90...2.10

AFB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 1000  
Setting value bar: 7.20...7.80  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

Full-load del. with charge press.:

Speed 1/min: 700  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 74.50...81.50

KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm3/: 3.5  
> 1000S.: (5.0)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 55.00...62.00  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm3/  
> 1000S.: 11.00...21.00  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm3/: 5.0  
> 1000S.: (5.0)

Full-load speed regulation

Speed 1/min: 1500  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 37.00...43.00  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24



Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 60.00...110.00  
mind> 1000s.: 60.00  
KSB/AFB  
Valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1100  
Charge press hPa: 1000  
TD travel mm: 2.80...3.40  
> mm: (2.40...3.80)  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.90...2.10  
> mm: (1.30...2.70)  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 900  
Charge press hPa: 1000  
TD travel mm: 0.50...1.10  
> mm: (0.10...1.50)  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
5th speed 1/min: 450  
Charge press. hPa: 1000  
TD travel mm: 3.50...4.70 B  
> mm: (3.40...3.80) B  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24  
6th speed 1/min: 320  
Charge press. hPa: 1000  
TD travel mm: 1.80...2.20 A  
> mm: (0.80...3.20) A  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 600

K27

Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.80...5.40  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.20...7.80  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1350  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 9.10...9.70  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 450  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.00...8.60 B  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
Overflow : 41.00...86.00  
quantity> cm<sup>3</sup>/10s: (26.00...98.00)  
2nd speed 1/min: 1350  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24  
Overflow : 55.00...139.00  
quantity> cm<sup>3</sup>/10s: (40.00...154.00)

Delivery-quant. and breakaway char.:

1st speed 1/min: 600\*  
Charge-air pressure-setting  
point> hPa: 300  
KSB/AFB  
valve > Volt: 24  
Shutoff



electromagnet>Volt: 24  
 Del. quantity cm3/: 76.50...77.50  
 > 1000S.: (73.00...81.00)  
 2nd speed 1/min: 1600  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 3rd speed 1/min: 1450  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 50.00...66.00  
 > 1000S.: (48.00...68.00)  
 5th speed 1/min: 1500  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 37.00...43.00  
 > 1000S.: (34.00...46.00)  
 6th speed 1/min: 1000  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 72.50...76.50  
 > 1000S.: (71.00...78.00)  
 7th speed 1/min: 600  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 78.50...82.50  
 > 1000S.: (77.00...84.00)  
 8th speed 1/min: 1350  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 70.00...73.00  
 > 1000S.: (68.00...75.00)  
 9th speed 1/min: 700  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 77.50...78.50  
 > 1000S.: (74.50...81.50)  
 10th speed 1/min: 500

Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 58.00...59.00  
 > 1000S.: (55.00...62.00)

#### Mech. shutoff:

1st speed 1/min: 1350  
 Charge press. hPa: 1000  
 Del. quantity cm3/: 0.0...3.0  
 > 1000S.: (0.0...3.0)  
 Shutoff  
 electromagnet>volt: 24

#### Electr. shutoff:

1st speed 1/min: 350  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 350  
 >KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 14.00...18.00  
 > 1000S.: (11.00...21.00)  
 Dispersion cm3/: 5.0  
 > 1000S.: (5.0)  
 2nd speed 1/min: 425  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

#### Automatic starting fuel delivery:

1st speed 1/min: 130  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 60.00...110.00  
 > 1000S.: (60.00...110.00)  
 2nd speed 1/min: 250  
 KSB/AFB  
 valve > Volt: 24  
 Shutoff  
 electromagnet>Volt: 24



Del. quantity cm<sup>3</sup>/: 33.00...67.00  
> 1000S.: (33.00...67.00)

4th speed 1/min: 100

KSB/AFB

valve > Volt: 24

Shutoff

electromagnet>Volt: 24

Del. quantity cm<sup>3</sup>/: 60.00...110.00

> 1000S.: (60.00...110.00)

Shutoff electromagnet:

Cut-in

>min voltage : 20,0

Rated voltage : 24,0

Mounting and assembly dimensions:

Designation

K mm: 3.5...3.7

KF mm: KOT

MS1 mm: 1.46-1.71

Ya mm: 37.9...39.9

Yb mm: 43.1...48.3

Remarks:

⋮

Operate control lever after each manifold-pressure compensator pressure change.

\* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position

Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position

Measurement point = edge of control lever on distributor-head end

A = KSB adjustment point

B = KSB curve point



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 01.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1100R620  
Type number : 0 460 426 243  
Customer Part-No. :

Customer-specific information  
Customer : CDC

Engine : 6T 590

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 027

Opening  
Pressure> bar: 250.00...253.00

Perforated-plate  
diameter> mm: 0,5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery  
Prestroke mm: 0,3  
> (from BDC): +0,02(0,04)

Start of delivery block  
Piston stroke mm: 1,50  
> mm: +0,02(0,06)  
Outlet > : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

L02

Speed 1/min: 750  
Setting value mm: 3.80...4.60  
Shutoff  
electromagnet>Volt: 24

Supply-pump pressure

Speed 1/min: 750  
Setting value bar: 5.40...6.00  
Shutoff  
electromagnet>Volt: 24

Full-load del. w/out charge press.:

Speed 1/min: 900  
Del. quantity cm3/  
> 1000S.: 62.00...63.00  
Shutoff  
electromagnet>Volt: 24

Low-idle speed regulation

Speed 1/min: 450  
Del. quantity cm3/  
> 1000S.: 5.00...11.00  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm3/: 5.5  
> 1000S.: (7.0)

Full-load speed regulation

Speed 1/min: 1140  
Del. quantity cm3/  
> 1000S.: 50.00...56.00  
Shutoff  
electromagnet>Volt: 24

Start:

Speed 1/min: 100  
Del. quantity cm3/: 55.00...115.00  
mind> 1000S.: 55.00  
Shutoff  
electromagnet>Volt: 24

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1000  
TD travel mm: 3.80...4.60  
> mm: (3.50...4.90)  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 750  
TD travel mm: 2.40...2.80  
> mm: (1.90...3.30)



Shutoff  
 electromagnet>Volt: 24

Supply-pump pressure characteristic:

1st speed 1/min: 400  
 Supply-pump  
 pressure> bar: 3.90...4.50  
 Shutoff  
 electromagnet>Volt: 24  
 2nd speed 1/min: 750  
 Supply-pump  
 pressure> bar: 5.40...6.00  
 Shutoff  
 electromagnet>Volt: 24  
 3rd speed 1/min: 1000  
 Supply-pump  
 pressure> bar: 6.40...7.00  
 Shutoff  
 electromagnet>Volt: 24

#### Overflow quantity at overflow valve:

1st speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 24  
 Overflow : 41.00...86.00  
 quantity> cm3/10s: (26.00...98.00)  
 2nd speed 1/min: 1100  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 24  
 Overflow : 55.00...139.00  
 quantity> cm3/10s: (40.00...154.00)

#### Delivery-quant. and breakaway char.:

1st speed 1/min: 1220  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 0.00...0.30  
 > 1000S.: (0.00...0.30)  
 2nd speed 1/min: 1175  
 Shutoff  
 electromagnet Volt: 24  
 Del. quantity cm3/: 23.00...53.00  
 > 1000S.: (23.00...53.00)  
 3rd speed 1/min: 1140  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 50.00...56.00  
 > 1000S.: (47.00...59.00)  
 4th speed 1/min: 1100  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 60.50...63.50  
 > 1000S.: (59.00...65.00)  
 5th speed 1/min: 900  
 Shutoff

electromagnet>Volt: 24  
 Del. quantity cm3/: 62.00...62.00  
 > 1000S.: (59.50...65.50)  
 6th speed 1/min: 750  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 57.00...61.00  
 > 1000S.: (55.00...63.00)  
 7th speed 1/min: 700  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 55.00...59.00  
 > 1000S.: (53.00...61.00)  
 8th speed 1/min: 400  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 16.50...24.50  
 > 1000S.: (14.50...26.50)

#### Electr. shutoff:

1st speed 1/min: 500  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 450  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 5.00...11.00  
 > 1000S.: (3.00...13.00)  
 Dispersion cm3/: 5.5  
 > 1000S.: (7.0)  
 2nd speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

#### Automatic starting fuel delivery:

1st speed 1/min: 240  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 5.00...35.00  
 > 1000S.: (5.00...35.00)  
 2nd speed 1/min: 180  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 55.00...115.00  
 > 1000S.: (55.00...115.00)  
 4th speed 1/min: 100  
 Shutoff



electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 55.00...115.00  
> 1000s.: (55.00...115.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 20,0  
Rated voltage : 24,0

Mounting and assembly dimensions:

KF mm: 5.0...5.4  
MS1 mm: 1.43-1.68  
Ya mm: 34.8...38.8  
Yb mm: 38.9...44.1

Remarks:

:  
:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Permissible port/port scatter with  
stop test, mechanical = max. 5.0  
ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CDC  
Edition : 02.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE6/12F1250R498-3  
Type number : 0 460 426 244  
Customer Part-No. :

Customer-specific information  
Customer : CDC

Engine : 6 BT 5.9B

Power KW: 107  
Speed 1/min: 2500

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 109

Opening  
Pressure> bar: 207.00...210.00

Perforated-plate  
diameter> mm: 0,5

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 1,20  
> mm:  $\pm 0,02(0,06)$   
Outlet > : D

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1000  
Charge press. hPa: 1000  
Setting value mm: 1.90...2.30  
Shutoff  
electromagnet>Volt: 24

### Supply-pump pressure

Speed 1/min: 1000  
Charge press hPa: 1000  
Setting value bar: 6.30...6.90  
Shutoff  
electromagnet>Volt: 24

### Full-load del. with charge press.:

Speed 1/min: 850  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 84.50...85.50  
Shutoff  
electromagnet>Volt: 24  
Dispersion cm3/: 5.0  
> 1000S.: (5.0)

### Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 60.50...61.50  
Shutoff  
electromagnet>Volt: 24

### Low-idle speed regulation

Speed 1/min: 350  
Del. quantity cm3/  
> 1000S.: 11.00...15.00  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm3/: 5.5  
> 1000S.: (7.0)

### Full-load speed regulation

Speed 1/min: 1350  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 51.00...57.00  
Shutoff  
electromagnet>Volt: 24

### Start:

Speed 1/min: 100  
Del. quantity cm3/: 65.00...95.00  
mind> 1000S.: 65.00  
Shutoff  
electromagnet>Volt: 24



# Inspection-pump test specifications Test specifications in parentheses

## Timing-device characteristic:

2nd speed 1/min: 1250  
Charge press hPa: 1000  
TD travel mm: 2.20...3.00  
> mm: (1.90...3.30)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.90...2.30  
> mm: (1.40...2.80)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 850  
Charge press hPa: 1000  
TD travel mm: 0.60...1.40  
> mm: (0.30...1.70)  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 24  
5th speed 1/min: 450  
Charge press. hPa: -  
TD travel mm: 2.00...3.00  
> mm: (1.80...3.20)  
KSB/AFB  
valve > Volt: 24  
Shutoff  
electromagnet>Volt: 24

## Supply-pump pressure characteristic:

1st speed 1/min: 500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.90...4.50  
Shutoff  
electromagnet>Volt: 24  
2nd speed 1/min: 850  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 24  
3rd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.30...6.90  
Shutoff  
electromagnet>Volt: 24  
4th speed 1/min: 1250  
Charge press. hPa: 1000

Supply-pump  
pressure> bar: 7.20...7.80  
Shutoff  
electromagnet>Volt: 24

## Overflow quantity at overflow valve:

1st speed 1/min: 500  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 24  
Overflow : 41.00...86.00  
quantity> cm<sup>3</sup>/10s: (26.00...98.00)  
2nd speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Overflow : 55.00...139.00  
quantity> cm<sup>3</sup>/10s: (40.00...154.00)

## Delivery-quant. and breakaway char.:

1st speed 1/min: 650\*  
Charge-air pressure-setting  
point> hPa: 450  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 71.50...72.50  
> 1000S.: (68.00...76.00)  
2nd speed 1/min: 1480  
Charge press. hPa: 1000  
Shutoff  
electromagnet Volt: 24  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 1425  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 10.00...40.00  
> 1000S.: (10.00...40.00)  
5th speed 1/min: 1350  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 51.00...57.00  
> 1000S.: (48.00...60.00)  
9th speed 1/min: 1100  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 82.50...85.50  
> 1000S.: (80.50...87.50)  
10th speed 1/min: 1250  
Charge press. hPa: 1000  
Shutoff  
electromagnet>Volt: 24  
Del. quantity cm<sup>3</sup>/: 80.00...84.00  
> 1000S.: (79.00...85.00)



12th speed 1/min: 850  
 Charge press. hPa: 1000  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 84.50...85.50  
 > 1000S.: (82.00...98.00)  
 18th speed 1/min: 500  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 60.50...61.50  
 > 1000S.: (57.00...65.00)

#### Mech. shutoff:

1st speed 1/min: 1250  
 Charge press. hPa: 1000  
 Del. quantity cm3/: 0.0...3.0  
 > 1000S.: (0.0...3.0)  
 Shutoff  
 electromagnet>volt: 24

#### Electr. shutoff:

1st speed 1/min: 350  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 350  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 11.00...15.00  
 > 1000S.: (6.00...20.00)  
 Dispersion cm3/: 5.5  
 > 1000S.: (7.0)  
 2nd speed 1/min: 410  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

#### Automatic starting fuel delivery:

1st speed 1/min: 200  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 60.00...90.00  
 > 1000S.: (60.00...90.00)  
 2nd speed 1/min: 130  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 75.00...115.00  
 > 1000S.: (75.00...115.00)

4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 24  
 Del. quantity cm3/: 65.00...95.00  
 > 1000S.: (65.00...95.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 20,0  
 Rated voltage : 24,0

#### Mounting and assembly dimensions:

##### Designation

K	mm: 3.6...3.8
KF	mm: KOT
MS1	mm: 1.21-1.46
Ya	mm: 34.8...38.8
Yb	mm: 43.6...48.8

##### Remarks:

:  
 :  
 Operate control lever after each manifold-pressure compensator pressure change.

##### \* Correction at adjusting nut

Ya = Distance between VE flange and speed-control lever in idle position  
 Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
 Measurement point = edge of control lever on distributor-head end

Permissible port/port scatter with stop test, electrical = max. 5.0 ccm/1000 S.

Permissible port/port scatter with stop test, mechanical = max. 5.0 ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PEU  
Edition : 02.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/8F2300R425-6  
Type number : 0 460 484 070  
Customer Part-No. :

Customer-specific information  
Customer : PSA

Engine : XUD9AY / L3

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130.00...133.00

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery

Indicator setting  
Piston stroke> mm: 0.3  
Outlet> : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250  
Setting value mm: 3.30...3.70  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250

L08

Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 29.70...30.70  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 4.50...5.50  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2650  
Del. quantity cm3/  
> 1000S.: 9.00...13.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 46.00...48.00  
mind> 1000S.: 39.50  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Inj.-qty. cm3/  
difference> 1000S.: -4.0...-10.00 #  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: -0.9...-1.1 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000



TD travel mm: 7.20...8.00  
 > mm: (6.90...8.30)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 TD travel mm: 3.30...3.70  
 > mm: (2.80...4.20)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 800  
 TD travel mm: 0.40...1.20  
 > mm: (0.10...1.50)  
 Shutoff  
 electromagnet>Volt: 12  
 Supply-pump pressure characteristic:  
 1st speed 1/min: 500  
 Supply-pump  
 pressure> bar: 3.30...3.90  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 5.70...6.30  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 2200  
 Supply-pump  
 pressure> bar: 8.20...8.80  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow quantity at overflow valve:  
 1st speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.00...83.00  
 quantity> cm3/10s: (26.00...91.00)  
 2nd speed 1/min: 2200  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.00...139.00  
 quantity> cm3/10s: (40.70...154.00)  
 Delivery-quant. and breakaway char.:  
 2nd speed 1/min: 2900  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 5th speed 1/min: 2650  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 9.00...13.00  
 > 1000S.: (7.00...15.00)  
 8th speed 1/min: 2500

Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 19.50...25.50  
 > 1000S.: (17.50...27.50)  
 9th speed 1/min: 2200  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 32.00...34.00  
 > 1000S.: (30.80...35.20)  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 29.70...30.70  
 > 1000S.: (28.00...32.40)  
 13th speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 29.80...32.80  
 > 1000S.: (28.30...34.30)  
 Delivery-quant. and breakaway char.:  
 Inj.-qty.values,temp.-compensated  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 29.70...30.70  
 > 1000S.: (28.00...32.40)  
 20th speed 1/min: 500  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 29.80...32.80  
 > 1000S.: (28.30...34.30)  
 Electr. shutoff:  
 1st speed 1/min: 400  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -  
 Damper set qty.:  
 LFG-setting:  
 Idle delivery:  
 1st speed 1/min: 400  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 12.00...14.00  
 > 1000S.: (9.00...17.00)  
 High Idle:



1st speed 1/mi: 475  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 8.50...10.50  
> 1000S.: (5.50...13.50)

Rest delivery:

1st speed 1/min: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 4.50...5.50  
> 1000S.: (3.00...7.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm3/ : -4.0...10.0 #  
difference> 1000S.: (-4.0...10.0) #  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Inj.-qty. cm3/ : -5.0...-7.0 '  
difference> 1000S.: (-3.0...-9.0) '  
Shutoff  
electromagnet Volt: 12  
3rd speed 1/min: 1250  
Inj.-qty. cm3/ : +2.0...+8.0 \*  
difference> 1000S.: (+2.0...+8.0) \*  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : -0.9...-1.1 #  
difference> mm: (-0.9...-1.1) #  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
TD-travel : -2.7...-3.7 \*  
difference> mm: (-2.6...-3.8) \*  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-  
pressure > : -0.1...-0.3 '  
difference> bar: (-0.1...-0.3) '  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply pump-  
pressure > : -1.2...-1.8 \*  
difference> bar: (-1.1...-1.9) \*  
Shutoff

electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 13.50...15.50  
> 1000S.: (10.50...18.50)

Automatic starting fuel delivery:

1st speed 1/min: 225  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...71.00  
> 1000S.: (37.00...71.00)

2nd speed 1/min: 350  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 20.00...40.00  
> 1000S.: (20.00...40.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 46.00...48.00  
> 1000S.: (39.50...54.50)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: KOT  
MS mm: 1.3...1.5  
Ya mm: 27.8...31.8  
Yb mm: 74.0...85.0

Remarks:  
: MIKROSCHALTER: MAB A  
: 0,8...3,0 MM



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 02.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/8F2200R574  
Type number : 0 460 484 071  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 1.9L SD EWK

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 111

Opening  
Pressure> bar: 147.00...150.00

Perforated-plate  
diameter> mm: 0.6

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 0.9  
> mm: +0.02(0.05)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250  
Setting value mm: 5.10...5.50  
AFB/AFB

valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.40...6.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 33.00...34.00 11  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 525  
Del. quantity cm3/  
> 1000S.: 6.00...8.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525  
Del. quantity cm3/  
> 1000S.: 8.50...12.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 40.00...66.00  
mind> 1000S.: 40.00  
KSB/AFB  
Valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:



2nd speed 1/min: 2000  
 TD travel mm: 7.50...8.30  
 > mm: (7.20...8.60)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 TD travel mm: 5.10...5.50  
 > mm: (4.60...6.00)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 750  
 TD travel mm: 3.10...3.90  
 > mm: (2.80...4.20)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 2000  
 TD travel mm: 0.90...1.70  
 > mm: (1.00...2.00)  
 KSB/AFB  
 valve > Volt: 12  
 Timing valve Volt: 12 !  
 Shutoff  
 electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 2000  
 Supply-pump  
 pressure> bar: 7.30...7.90  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 5.40...6.00  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 750  
 Supply-pump  
 pressure> bar: 4.00...4.60  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 750  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff

electromagnet>Volt: 12  
 Overflow : 41.00...83.00  
 quantity> cm3/10s: (26.00...98.00)  
 2nd speed 1/min: 2200  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.00...139.00  
 quantity> cm3/10s: (40.00...154.00)

#### Delivery-quant. and breakaway char.:

2nd speed 1/min: 2675  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 5th speed 1/min: 2525  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 8.50...12.50  
 > 1000S.: (6.50...14.50)  
 8th speed 1/min: 2400  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 22.00...32.00  
 > 1000S.: (21.00...33.00)  
 9th speed 1/min: 2200  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 34.00...36.00  
 > 1000S.: (32.80...37.20)  
 12th speed 1/min: 1250  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 33.00...34.00  
 > 1000S.: (31.30...35.70)  
 17th speed 1/min: 1250  
 KSB solenoid-operated  
 valve > volt: - !  
 Shutoff  
 electromagnet>volt: 12  
 Del. quantity cm3/: 29.70...30.70  
 > 1000H.: (28.00...32.40)  
 20th speed 1/min: 750  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff



electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 32.50...35.50  
> 1000S.: (31.00...37.00)  
21th speed 1/min: 400  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 34.50...40.50  
> 1000S.: (32.00...43.00)

#### Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 450  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.50...10.50  
> 1000S.: (5.50...13.50)

#### High Idle:

1st speed 1/mi: 525  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.50...10.50  
> 1000S.: (5.50...13.50)

#### Rest delivery:

1st speed 1/min: 550  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 6.00...8.00  
> 1000S.: (3.00...11.00)

#### Automatic starting fuel delivery:

1st speed 1/min: 180  
KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...74.00  
> 1000S.: (40.00...74.00)

4th speed 1/min: 100

KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...66.00  
> 1000S.: (40.00...66.00)

#### Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

#### Mounting and assembly dimensions:

#### Designation

K	mm: 3.2...3.4
KF	mm: 5.72
MS	mm: 1.1...1.5
Ya	mm: 36.0...40.0
Yb	mm: 47.7...57.3

#### Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.

On initial measurement, screw in  
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out  
residual-quantity adjusting screw 2 mm.



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 03.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/8F2200R606  
Type number : 0 460 484 077  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 1.9L SD Ecomatic

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 111

Opening  
Pressure> bar: 147.00...150.00

Perforated-plate  
diameter> mm: 0.6

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 1.00  
> mm: +0.02(0.05)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250  
Setting value mm: 5.10...5.50  
AFB/AFB

valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.40...6.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 33.00...34.00

KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

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Residual-Delivery Setting

Speed 1/min: 525  
Del. quantity cm3/  
> 1000S.: 6.00...8.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2525  
Del. quantity cm3/  
> 1000S.: 8.50...12.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 40.00...66.00  
mind> 1000S.: 40.00  
KSB/AFB  
Valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:



2nd speed 1/min: 2000  
 TD travel mm: 7.50...8.30  
 > mm: (7.20...8.60)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 TD travel mm: 5.10...5.50  
 > mm: (4.60...6.00)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 750  
 TD travel mm: 3.10...3.90  
 > mm: (2.80...4.20)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 6th speed 1/min: 2000  
 TD travel mm: 0.90...1.70  
 > mm: (0.60...2.00)  
 KSB/AFB  
 valve > Volt: 12  
 Timing valve Volt: 12 !  
 Shutoff  
 electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 2000  
 Supply-pump  
 pressure> bar: 7.30...7.90  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 5.40...6.00  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 750  
 Supply-pump  
 pressure> bar: 4.00...4.60  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 750  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff

electromagnet>Volt: 12  
 Overflow : 41.70...86.18  
 quantity> cm<sup>3</sup>/10s: (26.70...98.18)  
 2nd speed 1/min: 2200  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.00  
 quantity> cm<sup>3</sup>/10s: (40.60...154.00)

#### Delivery-quant. and breakaway char.:

2nd speed 1/min: 2675  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 5th speed 1/min: 2525  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 8.50...12.50  
 > 1000S.: (6.50...14.50)  
 8th speed 1/min: 2400  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 22.00...32.00  
 > 1000S.: (21.00...33.00)  
 9th speed 1/min: 2200  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 34.00...36.00  
 > 1000S.: (32.80...37.20)  
 12th speed 1/min: 1250  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 33.00...34.00  
 > 1000S.: (31.30...35.70)  
 19th speed 1/min: 1250  
 KSB/AFB  
 valve > Volt: 12  
 Timing valve Volt: 12 !  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 29.90...30.50  
 > 1000S.: -  
 20th speed 1/min: 750  
 KSB/AFB  
 valve > Volt: 12



Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 32.50...35.50  
 > 1000S.: (31.00...37.00)  
 21th speed 1/min: 400  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 32.50...35.50  
 > 1000S.: (31.00...37.00)

#### Electr. shutoff:

1st speed 1/min: 450  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 450  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm<sup>3</sup>/: 8.50...10.50  
 > 1000S.: (5.50...13.50)

#### High Idle:

1st speed 1/mi: 525  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 8.50...10.50  
 > 1000S.: (5.50...13.50)

#### Rest delivery:

1st speed 1/min: 525  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 6.00...8.00  
 > 1000S.: (3.00...11.00)

#### Automatic starting fuel delivery:

1st speed 1/min: 180  
 KSB/AFB

valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 40.00...74.00  
 > 1000S.: (40.00...74.00)  
 4th speed 1/min: 100  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 40.00...66.00  
 > 1000S.: (40.00...66.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

#### Designation

K	mm: 3.2...3.4
KF	mm: 5.72
MS	mm: 1.1...1.5
Ya	mm: 36.0...40.0
Yb	mm: 45.7...55.3

#### Ajustement Potentiometer:

Angle for  
 pot. > °: 10.0  
 Supply voltage  
 pot. > volt: 5.0  
 Output volt  
 pot. > volt: 0.7

#### Remarks:

:  
 :  
 On initial measurement, screw in residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out residual-quantity adjusting screw 2 mm.

Ya = Distance between VE flange and speed-control lever in idle position  
 Measurement point = edge of control lever on drive end

Yb = Distance between VE flange and speed-control lever in rated speed position  
 Measurement point = edge of control lever on distributor-head end



Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.





# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 09.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/8F2300R538-1  
Type number : 0 460 484 084  
Customer Part-No. :

Customer-specific information  
Customer : FIAT-AUTO

Engine : M708 NT 17.L

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 1.0  
> mm: ±0.02(0.04)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 4.00...4.20  
AFB/AFB  
valve > Volt: 12  
Shutoff

electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Charge press hPa: 1000  
Setting value bar: 5.20...5.80  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 41.00...42.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.5  
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 750  
Del. quantity cm3/  
> 1000S.: 28.00...29.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

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Low-idle speed regulation

Speed 1/min: 450  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.5  
> 1000S.: (2.5)

Full-load speed regulation

Speed 1/min: 2500  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 28.50...32.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Start:



Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 35.00...59.00  
mind> 1000S.: 35.00

KSB/AFB

Valve > Volt: 12

Shutoff

electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2000  
Charge press hPa: 1000  
TD travel mm: 6.50...7.10  
> mm: (6.20...7.40)

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 1500

Charge press hPa: 1000

TD travel mm: 4.00...4.20  
> mm: (3.50...4.70)

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

4th speed 1/min: 1000

Charge press hPa: 1000

TD travel mm: 1.10...1.70  
> mm: (0.80...2.00)

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

5th speed 1/min: 2300

Charge press. hPa: 1000

TD travel mm: 7.90...8.50  
> mm: (7.60...8.80)

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

8th speed 1/min: 1100

Charge press. hPa: 1000

TD travel mm: 2.00...4.00 B  
> mm: (1.30...4.70) B

KSB/AFB

valve > Volt: -

Shutoff

electromagnet>Volt: 12

9th speed 1/min: 400

Charge press. hPa: 1000

TD travel mm: 0.50...2.50 A  
> mm: (0.00...3.20) A

KSB/AFB

valve > Volt: -

Shutoff

electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2300

Charge press. hPa: 1000

Supply-pump pressure> bar: 7.30...7.90

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 1500

Charge press. hPa: 1000

Supply-pump pressure> bar: 5.20...5.80

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

4th speed 1/min: 1000

Charge press. hPa: 1000

Supply-pump pressure> bar: 3.90...4.50

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 750

Charge press. hPa: -

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

Overflow : 41.70...86.18

quantity> cm<sup>3</sup>/10s: (26.70...98.18)

2nd speed 1/min: 2300

Charge press. hPa: 1000

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

Overflow : 55.60...139.00

quantity> cm<sup>3</sup>/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

1nd speed 1/min: 1100

Charge-air pressure-setting point> hPa: 350\*

KSB/AFB

valve > Volt: 12

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...36.00

> 1000S.: (33.00...38.00)



2nd speed 1/min: 2900  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 3rd speed 1/min: 2700  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 4.50...12.50  
 > 1000S.: (3.50...13.50)  
 5th speed 1/min: 2500  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 28.50...32.50  
 > 1000S.: (25.50...35.50)  
 9th speed 1/min: 2300  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 40.50...42.50  
 > 1000S.: (39.20...43.80)  
 12th speed 1/min: 1500  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 41.00...42.00  
 > 1000S.: (39.50...43.50)  
 18th speed 1/min: 750  
 Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 28.00...29.00  
 > 1000S.: (26.00...31.00)  
 20th speed 1/min: 750  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 39.50...42.00  
 > 1000S.: (38.00...43.00)

Electr. shutoff:

L20

1st speed 1/min: 450  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Idle delivery:

1st speed 1/min: 450  
 >KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 10.00...14.00  
 > 1000S.: (7.00...17.00)  
 Dispersion cm<sup>3</sup>/: 2.5  
 > 1000S.: (2.5)  
 2nd speed 1/min: 550  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 3rd speed 1/min: 400  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 20.50...25.50

Automatic starting fuel delivery:

1st speed 1/min: 300  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 37.00...57.00  
 > 1000S.: (37.00...57.00)

2nd speed 1/min: 600  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 14.00...34.00  
 > 1000S.: (14.00...34.00)

4th speed 1/min: 100  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm<sup>3</sup>/: 35.00...59.00  
 > 1000S.: (35.00...59.00)

Shutoff electromagnet:



Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 1.0...1.4
Ya	mm: 37.2...39.2
Yb	mm: 40.4...49.0

Remarks:

⋮

Operate control lever after each  
manifold-pressure compensator pressure  
change.

\* Correction at adjusting nut

A = KSB adjustment point  
B = KSB curve point

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 08.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE5/8F2100L545-1  
Type number : 0 460 485 020  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 2.4l. SD T4

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 1.0  
> mm: ± 0.02(0.05)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1250  
Setting value mm: 2.20...2.60  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 36.00...37.00  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540  
Del. quantity cm3/  
> 1000S.: 6.50...7.50  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 35.00...85.00  
mind> 1000S.: 35.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: -3.50...-9.50 #  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -0.3...-0.5 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 1790



TD travel mm: 5.00...5.80  
 > mm: (4.70...6.10)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 TD travel mm: 2.20...2.60  
 > mm: (1.70...3.10)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1000  
 TD travel mm: 0.70...1.50  
 > mm: (0.40...1.80)  
 Shutoff  
 electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 1000  
 Supply-pump  
 pressure> bar: 5.00...5.60  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 5.70...6.30  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1790  
 Supply-pump  
 pressure> bar: 7.20...7.80  
 > bar: (7.00...8.00)  
 Shutoff  
 electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...83.40  
 quantity> cm3/10s: (27.80...97.30)  
 2nd speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.90  
 quantity> cm3/10s: (41.70...152.90)

#### Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)  
 5th speed 1/min: 2400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 10.00...14.00  
 > 1000S.: (8.00...16.00)

8th speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.00...27.00  
 > 1000S.: (16.00...28.00)  
 9th speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 30.00...32.00  
 > 1000S.: (28.80...33.20)  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 36.00...37.00  
 > 1000S.: (34.30...38.70)  
 20th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 32.30...35.30  
 > 1000S.: (30.80...36.80)

#### Electr. shutoff:

1st speed 1/min: 415  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 415  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 7.00...9.00  
 > 1000S.: (4.00...12.00)

#### Rest delivery:

1st speed 1/min: 540  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 6.50...7.50  
 > 1000S.: (5.00...9.00)  
 2nd speed 1/min: 490  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 6.80...8.80  
 > 1000S.: (5.30...10.30)

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500



Inj.-qty. cm<sup>3</sup>/ : -6.0...-8.0 '  
difference> 1000S.: (-6.0...-8.0) '  
Shutoff

electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Inj.-qty. cm<sup>3</sup>/: -3.5...-9.5 #  
difference> 1000S.: (-2.5...-10.5) #  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1500  
TD-travel : -0.3...-0.5 #  
difference> mm: (-0.3...-0.5) #  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : -0.1...-0.3 '  
difference> bar: (-0.2...-0.2) '  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...85.00  
> 1000S.: (35.00...85.00)

2nd speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 17.00...37.00  
> 1000S.: (17.00...37.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...85.00  
> 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.6...6.0  
MS mm: 1.2...1.6  
Ya mm: 32.8...34.8

Yb mm: 60.5...61.5

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

On initial measurement, screw in  
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out  
residual-quantity adjusting screw 2 mm.

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV  
Edition : 03.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE5/8F2100L525-5  
Type number : 0 460 485 022  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 2.4L SD - T4

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 1.0  
> mm: +0.02(0.05)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1500  
Setting value mm: 4.10...4.50  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Setting value bar: 7.10...7.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 35.00...36.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

## Residual-Delivery Setting

Speed 1/min: 540  
Del. quantity cm3/  
> 1000S.: 6.50...7.50  
Shutoff  
electromagnet Volt: 12

## Full-load speed regulation

Speed 1/min: 2400  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm3/: 35.00...85.00  
mind> 1000S.: 35.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: -7.50...-13.50#  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -1.1...-1.3 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:



2nd speed 1/min: 1790  
 TD travel mm: 5.90...6.70  
 > mm: (5.60...7.00)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 TD travel mm: 4.10...4.50  
 > mm: (3.60...5.00)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1100  
 TD travel mm: 1.20...2.00  
 > mm: (0.90...2.30)  
 Shutoff  
 electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 1100  
 Supply-pump  
 pressure> bar: 5.90...6.50  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1500  
 Supply-pump  
 pressure> bar: 7.10...7.70  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1790  
 Supply-pump  
 pressure> bar: 7.80...8.40  
 Shutoff  
 electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...83.40  
 quantity> cm3/10s: (27.80...97.30)  
 2nd speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.90  
 quantity> cm3/10s: (41.70...152.90)

#### Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)  
 5th speed 1/min: 2400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 10.00...14.00

> 1000S.: (8.00...16.00)  
 8th speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.00...27.00  
 > 1000S.: (16.00...28.00)  
 9th speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.50...30.50  
 > 1000S.: (27.30...31.70)  
 11th speed 1/min: 1850  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 29.50...35.50  
 > 1000S.: -  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.00...36.00  
 > 1000S.: (33.30...37.70)  
 20th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.80...34.80  
 > 1000S.: (30.30...36.30)

#### Mech. shutoff:

1st speed 1/min: 2100  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: 12

#### Electr. shutoff:

1st speed 1/min: 415  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 415  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 7.00...9.00  
 > 1000S.: (4.00...12.00)

#### Rest delivery:

1st speed 1/min: 540  
 Shutoff



electromagnet>Volt: 12  
 Del. quantity cm3/: 6.50...7.50  
 > 1000S.: (5.00...9.00)  
 2nd speed 1/min: 465  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 7.00...9.00  
 > 1000S.: (4.00...12.00)

Load-dependent start of delivery:  
 Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
 Inj.-qty. cm3/ : -7.5...-13.5#  
 difference> 1000S.: (-6.5...-14.5)#  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Inj.-qty. cm3/ : -6.0...-8.0 '  
 difference> 1000S.: (-6.0...-8.0) '  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 1500  
 Inj.-qty. cm3/ : 0.0...+3.00 \*  
 difference> 1000S.: (0.0...+3.00) \*  
 Shutoff  
 electromagnet>Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1500  
 TD-travel : -1.1...-1.3 #  
 difference> mm: (-1.1...-1.3) #  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1500  
 TD-travel : -1.9...-2.3 \*  
 difference> mm: (-1.5...-2.7) \*

SP press.-dif.measurement:  
 pompa di mandata (FP):  
 1st speed 1/min: 1500  
 Supply pump-  
 pressure > : -0.1...-0.3 '  
 difference> bar: (-0.1...-0.3) '  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Supply pump-  
 pressure > : -0.8...-1.2 \*  
 difference> bar: (-0.6...-1.4) \*  
 Shutoff  
 electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.00...85.00

> 1000S.: (35.00...85.00)

2nd speed 1/min: 380  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.00...37.00  
 > 1000S.: (17.00...37.00)

4th speed 1/min: 100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.00...85.00  
 > 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
 K mm: 3.2...3.4  
 KF mm: 5.6...6.0  
 MS mm: 1.3...1.5  
 Ya mm: 32.8...34.8  
 Yb mm: 61.5...68.5

Adjustment Potentiometer:

Angle for  
 pot. > °: 25...35  
 Supply voltage  
 pot. > volt: 5.00  
 Output volt  
 pot. > volt: 0.70

Remarks:

:  
 :  
 On initial measurement, screw in  
 residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out  
 residual-quantity adjusting screw 2 mm.

Ya = Distance between VE flange and  
 speed-control lever in idle  
 position  
 Measurement point = edge of control  
 lever on drive end

Yb = Distance between VE flange and  
 speed-control lever in rated speed  
 position  
 Measurement point = edge of control  
 lever on distributor-head end



Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.





# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 03.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE5/8F2100L457-2  
Type number : 0 460 485 023  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 2.4L SD - T4

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 1.0  
> mm: +0.02(0.05)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500  
Setting value mm: 4.10...4.50  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Setting value bar: 7.10...7.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 35.00...36.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

Residual-Delivery Setting

Speed 1/min: 540  
Del. quantity cm3/  
> 1000S.: 6.50...7.50  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2400  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Del. quantity cm3/: 35.00...85.00  
mind> 1000S.: 35.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: -7.50...-13.50#  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -1.1...-1.3 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:



2nd speed 1/min: 1790  
 TD travel mm: 5.90...6.70  
 > mm: (5.60...7.00)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 TD travel mm: 4.10...4.50  
 > mm: (3.60...5.00)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1100  
 TD travel mm: 1.20...2.00  
 > mm: (0.90...2.30)  
 Shutoff  
 electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 1100  
 Supply-pump  
 pressure> bar: 5.90...6.50  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1500  
 Supply-pump  
 pressure> bar: 7.10...7.70  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1790  
 Supply-pump  
 pressure> bar: 7.80...8.40  
 Shutoff  
 electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...83.40  
 quantity> cm3/10s: (27.80...97.30)  
 2nd speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.90  
 quantity> cm3/10s: (41.70...152.90)

#### Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)  
 5th speed 1/min: 2400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 10.00...14.00

> 1000S.: (8.00...16.00)  
 8th speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.00...27.00  
 > 1000S.: (16.00...28.00)  
 9th speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.50...30.50  
 > 1000S.: (27.30...31.70)  
 11th speed 1/min: 1850  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 29.50...35.50  
 > 1000S.: -  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.00...36.00  
 > 1000S.: (33.30...37.70)  
 20th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.80...34.80  
 > 1000S.: (30.30...36.30)

#### Electr. shutoff:

1st speed 1/min: 415  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 415  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 7.00...9.00  
 > 1000S.: (4.00...12.00)

#### Rest delivery:

1st speed 1/min: 540  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 6.50...7.50  
 > 1000S.: (5.00...9.00)  
 2nd speed 1/min: 490  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 6.80...8.80



> 1000S.: (5.30...10.30)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Inj.-qty. cm3/ : -7.5...-13.5#  
difference> 1000S.: (-6.5...-14.5)#  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Inj.-qty. cm3/ : -6.0...-8.0 '  
difference> 1000S.: (-6.0...-8.0) '  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1500  
Inj.-qty. cm3/ : 0.0...+3.00 \*  
difference> 1000S.: (0.0...+3.00) \*  
Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1500  
TD-travel : -1.1...-1.3 #  
difference> mm: (-1.1...-1.3) #  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
TD-travel : -1.9...-2.3 \*  
difference> mm: (-1.5...-2.7) \*

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1500  
Supply pump-  
pressure > : -0.1...-0.3 '  
difference> bar: (-0.1...-0.3) '  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Supply pump-  
pressure > : -0.8...-1.2 \*  
difference> bar: (-0.6...-1.4) \*  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 35.00...85.00  
> 1000S.: (35.00...85.00)

2nd speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 17.00...37.00  
> 1000S.: (17.00...37.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 35.00...85.00  
> 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.6...6.0  
MS mm: 1.3...1.5  
Ya mm: 32.8...34.8  
Yb mm: 60.5...71.5

Remarks:

:  
:  
On initial measurement, screw in  
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out  
residual-quantity adjusting screw 2 mm.

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV  
Edition : 06.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VES/8F2100L632  
Type number : 0 460 485 024  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 2.4L SD - T4

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 1.0  
> mm: +0.02(0.05)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1250  
Setting value mm: 2.20...2.60  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1250  
Setting value bar: 5.70...6.30  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 36.00...37.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

## Full-load speed regulation

Speed 1/min: 2400  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm3/: 35.00...85.00  
mind> 1000S.: 35.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: -3.50...-9.50#  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -0.3...-0.5 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

## Timing-device characteristic:

2nd speed 1/min: 1790  
TD travel mm: 5.00...5.80  
> mm: (4.70...6.10)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
TD travel mm: 2.20...2.60



> mm: (1.70...3.10)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1000  
 TD travel mm: 0.70...1.50  
 > mm: (0.40...1.80)  
 Shutoff  
 electromagnet>Volt: 12  
  
 Supply-pump pressure characteristic:  
  
 1st speed 1/min: 1000  
 Supply-pump  
 pressure> bar: 5.00...5.60  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1250  
 Supply-pump  
 pressure> bar: 5.70...6.30  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1790  
 Supply-pump  
 pressure> bar: 7.20...7.80  
 Shutoff  
 electromagnet>Volt: 12  
  
 Overflow quantity at overflow valve:  
  
 1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...83.40  
 quantity> cm3/10s: (27.80...97.30)  
 2nd speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.90  
 quantity> cm3/10s: (41.70...152.90)  
  
 Delivery-quant. and breakaway char.:  
  
 2nd speed 1/min: 2600  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)  
 5th speed 1/min: 2400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 10.00...14.00  
 > 1000S.: (8.00...16.00)  
 8th speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.00...27.00  
 > 1000S.: (16.00...28.00)  
 9th speed 1/min: 2100  
 Shutoff

electromagnet>Volt: 12  
 Del. quantity cm3/: 30.00...32.00  
 > 1000S.: (28.80...33.20)  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 36.00...37.00  
 > 1000S.: (34.30...38.70)  
 20th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 32.30...35.30  
 > 1000S.: (30.80...36.80)

#### Electr. shutoff:

1st speed 1/min: 415  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 415  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 7.00...9.00  
 > 1000S.: (4.00...12.00)  
 Dispersion cm3/: 2.0  
 > 1000S.: (3.0)

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
 Inj.-qty. cm3/ : -3.5...-9.5 #  
 difference> 1000S.: (-2.5...-10.5)#  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Inj.-qty. cm3/ : -6.0...-8.0 '  
 difference> 1000S.: (-6.0...-8.0) '  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 1500  
 Inj.-qty. cm3/ : 0.0...+3.00 \*  
 difference> 1000S.: (0.0...+3.00) \*  
 Shutoff  
 electromagnet>Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1500  
 TD-travel : -0.3...-0.5 #  
 difference> mm: (-0.3...-0.5) #  
 Shutoff  
 electromagnet>Volt: 12



2nd speed 1/min: 1500  
TD-travel : -1.2...-1.6 \*  
difference> mm: (-0.8...-2.0) \*

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1500

Supply pump-  
pressure > : -0.1...-0.3 '  
difference> bar: (-0.1...-0.3) '

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 1500

Supply pump-  
pressure > : -0.8...-1.2 \*  
difference> bar: (-0.6...-1.4) \*

Shutoff

electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...85.00  
> 1000S.: (35.00...85.00)

2nd speed 1/min: 380

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 17.00...37.00  
> 1000S.: (17.00...37.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...85.00  
> 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.6...6.0

MS mm: 1.3...1.5

Ya mm: 32.8...34.8

Yb mm: 60.5...71.5

Remarks:

⋮

On initial measurement, screw in  
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out  
residual-quantity adjusting screw 2 mm.

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 06.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE5/8F2100L633  
Type number : 0 460 485 025  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 2.4L SD - T4

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 1.0  
> mm:  $\pm 0.02(0.05)$   
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1500  
Setting value mm: 4.10...4.50  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Setting value bar: 7.10...7.70  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1250  
Del. quantity cm3/  
> 1000S.: 35.00...36.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

## Full-load speed regulation

Speed 1/min: 2400  
Del. quantity cm3/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm3/: 35.00...85.00  
mind> 1000S.: 35.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: -7.50...-13.50#  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -1.1...-1.3 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

## Timing-device characteristic:

2nd speed 1/min: 1790  
TD travel mm: 5.90...6.70  
> mm: (5.60...7.00)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
TD travel mm: 4.10...4.50



> mm: (3.60...5.00)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 1100  
 TD travel mm: 1.20...2.00  
 > mm: (0.90...2.30)  
 Shutoff  
 electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 1100  
 Supply-pump  
 pressure> bar: 5.90...6.50  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1500  
 Supply-pump  
 pressure> bar: 7.10...7.70  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1790  
 Supply-pump  
 pressure> bar: 7.80...8.40  
 Shutoff  
 electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...83.40  
 quantity> cm3/10s: (27.80...97.30)  
 2nd speed 1/min: 2100  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.90  
 quantity> cm3/10s: (41.70...152.90)

#### Delivery-quant. and breakaway char.:

2nd speed 1/min: 2600  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...6.00  
 > 1000S.: (0.00...6.00)  
 5th speed 1/min: 2400  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 10.00...14.00  
 > 1000S.: (8.00...16.00)  
 8th speed 1/min: 2300  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 17.00...27.00  
 > 1000S.: (16.00...28.00)  
 9th speed 1/min: 2100  
 Shutoff

electromagnet>Volt: 12  
 Del. quantity cm3/: 28.50...30.50  
 > 1000S.: (27.30...31.70)  
 12th speed 1/min: 1250  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 35.00...36.00  
 > 1000S.: (33.30...37.70)  
 20th speed 1/min: 600  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.80...34.80  
 > 1000S.: (30.30...36.30)

#### Electr. shutoff:

1st speed 1/min: 415  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Idle delivery:

1st speed 1/min: 415  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 7.00...9.00  
 > 1000S.: (4.00...12.00)  
 Dispersion cm3/: 2.0  
 > 1000S.: (3.0)

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
 Inj.-qty. cm3/ : -7.5...-13.5#  
 difference> 1000S.: (-6.5...-14.5)#  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Inj.-qty. cm3/ : -6.0...-8.0 '  
 difference> 1000S.: (-6.0...-8.0) '  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 1500  
 Inj.-qty. cm3/ : 0.0...+3.00 \*  
 difference> 1000S.: (0.0...+3.00) \*  
 Shutoff  
 electromagnet>Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1500  
 TD-travel : -1.1...-1.3 #  
 difference> mm: (-1.1...-1.3) #  
 Shutoff  
 electromagnet>Volt: 12



2nd speed 1/min: 1500  
TD-travel : -1.9...-2.3 \*  
difference> mm: (-1.5...-2.7) \*

SP press.-dif.measurement:

pompa di mandata (FP):

1st speed 1/min: 1500

Supply pump-

pressure > : -0.1...-0.3 '

difference> bar: (-0.1...-0.3) '

Shutoff

electromagnet>Volt: 12

3rd speed 1/min: 1500

Supply pump-

pressure > : -0.8...-1.2 \*

difference> bar: (-0.6...-1.4) \*

Shutoff

electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...85.00

> 1000S.: (35.00...85.00)

2nd speed 1/min: 380

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 17.00...37.00

> 1000S.: (17.00...37.00)

4th speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...85.00

> 1000S.: (35.00...85.00)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.2...3.4

KF mm: 5.6...6.0

MS mm: 1.3...1.5

Ya mm: 32.8...34.8

Yb mm: 60.5...71.5

Remarks:

:

On initial measurement, screw in  
residual-quantity adjusting screw 2 mm.

Following pump adjustment, screw out  
residual-quantity adjusting screw 2 mm.

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : SEA  
Edition : 08.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2300R54-2  
Type number : 0 460 494 263  
Customer Part-No. :

Customer-specific information  
Customer : SEAT

Engine : X0 3972865 1.7L.

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 1.0  
> mm:  $\pm 0.02(0.04)$   
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel

Speed 1/min: 1500  
Setting value mm: 4.00...4.40  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

M10

Speed 1/min: 1500  
Setting value bar: 5.90...6.50  
Shutoff  
electromagnet>Volt: 12

Full-load del. w/out charge press.:

Speed 1/min: 1500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 31.00...32.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (3.0)

### Low-idle speed regulation

Speed 1/min: 415  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 8.00...12.00  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 2.0  
> 1000S.: (3.0)

### Full-load speed regulation

Speed 1/min: 2525  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 10.00...14.00  
Shutoff  
electromagnet>Volt: 12

### Start:

Speed 1/min: 100  
Del. quantity cm<sup>3</sup>/: 48.00...98.00  
mind> 1000S.: 48.00  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: -11.5...-17.5 #  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -0.4...-0.6 #  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses



### Timing-device characteristic:

2nd speed 1/min: 2250  
TD travel mm: 6.70...7.50  
> mm: (6.40...7.80)

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
TD travel mm: 4.00...4.40  
> mm: (3.50...4.90)

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 800  
TD travel mm: 1.50...2.30  
> mm: (1.20...2.60)

Shutoff  
electromagnet>Volt: 12

### Supply-pump pressure characteristic:

1st speed 1/min: 600  
Supply-pump  
pressure> bar: 3.80...4.40

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Supply-pump  
pressure> bar: 5.90...6.50

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2250  
Supply-pump  
pressure> bar: 7.70...8.30

Shutoff  
electromagnet>Volt: 12

### Overflow quantity at overflow valve:

1st speed 1/min: 600  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm<sup>3</sup>/10s: (27.80...97.30)

2nd speed 1/min: 2250  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.90  
quantity> cm<sup>3</sup>/10s: (41.70...152.90)

### Delivery-quant. and breakaway char.:

3rd speed 1/min: 2675  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...6.00  
> 1000S.: (0.00...6.00)  
5th speed 1/min: 2525  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 10.00...14.00  
> 1000S.: (8.00...16.00)  
8th speed 1/min: 2425  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 20.00...30.00  
> 1000S.: (19.00...31.00)  
9th speed 1/min: 2250  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 25.00...27.00  
> 1000S.: (23.80...28.20)  
12th speed 1/min: 1500  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 31.50...32.50  
> 1000S.: (29.50...34.50)  
20th speed 1/min: 600  
Shutoff

electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 21.00...24.00  
> 1000S.: (19.50...25.50)

Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 21.00...24.00  
> 1000S.: (19.50...25.50)

### Electr. shutoff:

1st speed 1/min: 415  
Del. quantity cm<sup>3</sup>/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

### Idle delivery:

1st speed 1/min: 415  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.00...12.00  
> 1000S.: (6.00...14.00)

Dispersion cm<sup>3</sup>/: 2.0  
> 1000S.: (3.0)  
2nd speed 1/min: 900  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 0.00...4.00  
> 1000S.: (0.00...4.00)

### Load-dependent start of delivery: Inj.-qty.dif.measurement:

3rd speed 1/min: 1500  
Inj.-qty. cm<sup>3</sup>/: -11.5...-17.5  
difference> 1000S.: (-9.5...-19.5)#  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1500  
Inj.-qty. cm<sup>3</sup>/: +2.0...+8.0 \*  
difference> 1000S.: (+2.0...+8.0) \*



Shutoff  
electromagnet>Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1500  
TD-travel : -0.4...-0.6 #  
difference> mm: (-0.4...-0.6) #  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
TD-travel : -1.0...-1.4 \*  
difference> mm: (-0.6...-1.8) \*  
Shutoff  
electromagnet>Volt: 12

SP press.-dif.measurement:  
pompa di mandata (FP):  
1st speed 1/min: 1500  
3rd speed 1/min: 1500  
Supply pump-  
pressure > : -0.8...-1.2 \*  
difference> bar: (-0.6...-1.4) \*  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 280  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...85.00  
> 1000S.: (35.00...85.00)

2nd speed 1/min: 480  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 15.00...35.00  
> 1000S.: (15.00...35.00)

4th speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 48.00...98.00  
> 1000S.: (48.00...98.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.3...3.5  
KF mm: 5.8...6.2  
MS mm: 1.9...2.1  
Ya mm: 36.2...40.2  
Yb mm: 42.2...52.2

Remarks:

:  
:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 08.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2100R547  
Type number : 0 460 494 348  
Customer Part-No. :

Customer-specific information  
Customer : FIAT-AUTO

Engine : M705 VT19.L

Power KW: 60  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 0.70  
> mm: ±0.02(0.04)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 5.80...6.20

AFB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Charge press hPa: 1000  
Setting value bar: 5.80...6.40  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 45.50...46.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/  
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm3/  
> 1000S.: 41.00...42.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Residual-Delivery Setting

Speed 1/min: 600  
Del. quantity cm3/  
> 1000S.: 4.00...6.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 31.00...37.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Start:



Speed 1/min: 100  
 Del. quantity cm3/: 50.00...80.00  
 mind> 1000S.: 50.00  
 KSB/AFB  
 Valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

Load-dependent start of delivery:  
 Inj.-qty.dif.measurement:

Speed 1/min: 1500  
 Inj.-qty. cm3/  
 difference> 1000S.: -10.0...-18.0 #  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 TD-travel dif.measurement

1.Speed 1/min: 1500  
 TD-travel  
 difference> mm: -0.8...-1.0 #  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

Inspection-pump test specifications  
 Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
 Charge press hPa: 1000  
 TD travel mm: 8.60...9.40  
 > mm: (8.30...9.70)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Charge press hPa: 1000  
 TD travel mm: 5.80...6.20  
 > mm: (5.40...6.60)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 800  
 Charge press hPa: 1000  
 TD travel mm: 1.70...2.50  
 > mm: (1.40...2.80)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 1000  
 Charge press. hPa: 1000

TD travel mm: 4.50...7.50 B  
 > mm: (4.00...8.00) B  
 KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12  
 6th speed 1/min: 500  
 Charge press. hPa: 1000  
 TD travel mm: 3.20...4.80 A  
 > mm: (2.50...5.50) A

KSB/AFB  
 valve > Volt: -  
 Shutoff  
 electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
 Charge press. hPa: 1000  
 Supply-pump  
 pressure> bar: 7.50...8.10  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1500  
 Charge press. hPa: 1000  
 Supply-pump  
 pressure> bar: 5.80...6.40  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 800  
 Charge press. hPa: 1000  
 Supply-pump  
 pressure> bar: 3.70...4.30  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
 Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 75.06...119.54  
 quantity> cm3/10s: (75.06...119.54)  
 2nd speed 1/min: 2100  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 97.30...180.70  
 quantity> cm3/10s: (97.30...180.70)



Delivery-quant. and breakaway char.:

1st speed 1/min: 900\*  
Charge-air pressure-setting  
point> hPa: 350  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 46.00...47.00  
> 1000S.: (44.00...49.00)  
3rd speed 1/min: 2650  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 0.00...7.00  
> 1000S.: (0.00...7.00)  
4th speed 1/min: 2450  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 13.00...21.00  
> 1000S.: (12.00...22.00)  
5th speed 1/min: 2300  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 31.00...37.00  
> 1000S.: (29.00...39.00)  
9th speed 1/min: 2100  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.00...48.00  
> 1000S.: (44.00...49.00)  
12th speed 1/min: 1500  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.50...46.50  
> 1000S.: (44.00...48.00)  
18th speed 1/min: 600  
Charge press. hPa: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 41.00...42.00

M15

> 1000S.: (39.00...44.00)  
20th speed 1/min: 900  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 47.00...50.00  
> 1000S.: (46.00...51.00)

Electr. shutoff:

1st speed 1/min: 450  
Charge press. hPa: -  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 14.50...18.50  
> 1000S.: (12.50...20.50)

Rest delivery:

1st speed 1/min: 600  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 4.00...6.00  
> 1000S.: (3.00...7.00)  
2nd speed 1/min: 550  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 5.50...8.50

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
Inj.-qty. cm3/ : -9.0...-11.0'  
difference> 1000S.: (-9.0...-11.0)'  
KSB/AFB  
valve > Volt: 12  
Shutoff



electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Inj.-qty. cm3/: -10.0...-18.0#  
 difference> 1000S.: (-10.0...-18.0)#  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 1500  
 Inj.-qty. cm3/: 0.00...+3.00\*  
 difference> 1000S.: (0.00...+3.00)\*  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1500  
 TD-travel : -0.8...-1.0 #  
 difference> mm: (-0.8...-1.0) #  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 TD-travel : -1.1...-1.7 \*  
 difference> mm: (-1.0...-1.8) \*  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

SP press.-dif.measurement:  
 pompa di mandata (FP):  
 1st speed 1/min: 1500  
 Supply pump-  
 pressure > : -0.1...-0.3 '  
 difference> bar: (-0.1...-0.3) '  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

#### Automatic starting fuel delivery:

1st speed 1/min: 220  
 KSB/AFB  
 valve > Volt: 12  
 Timing valve Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 52.00...78.00  
 > 1000S.: (52.00...78.00)

2nd speed 1/min: 350  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

Del. quantity cm3/: 35.00...45.00  
 > 1000S.: (35.00...45.00)

4th speed 1/min: 100  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 50.00...80.00  
 > 1000S.: (50.00...80.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.6...6.0
MS	mm: 1.3...1.7
Ya	mm: 37.2...39.2
Yb	mm: 36.6...45.4

#### Remarks:

:  
 :  
 Ya = Distance between VE flange and  
 speed-control lever in idle  
 position  
 Measurement point = edge of control  
 lever on drive end

Yb = Distance between VE flange and  
 speed-control lever in rated speed  
 position  
 Measurement point = edge of control  
 lever on distributor-head end

A = KSB adjustment point  
 B = KSB curve point

Overflow restriction 0.75 mm - Part No.  
 ..343,..344

Microswitch  
 Gap A = 0.8...3.0 mm



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 08.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2100R548  
Type number : 0 460 494 349  
Customer Part-No. :

Customer-specific information  
Customer : FIAT-AUTO

Engine : M705 VT19.L

Power KW: 60  
Speed 1/min: 2100

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 344

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 1.00  
> mm:  $\pm 0.02 (0.04)$   
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 5.80...6.20

AFB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Charge press hPa: 1000  
Setting value bar: 5.80...6.40  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1500  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 45.50...46.50

KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.5  
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 600  
Del. quantity cm3/  
> 1000S.: 41.00...42.00

KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

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Residual-Delivery Setting

Speed 1/min: 600  
Del. quantity cm3/  
> 1000S.: 4.00...6.00

KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2300  
Charge press hPa: 1000  
Del. quantity cm3/  
> 1000S.: 31.00...37.00

KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Start:



Speed 1/min: 100  
Del. quantity cm3/: 50.00...80.00  
mind> 1000S.: 50.00

KSB/AFB  
Valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/  
difference> 1000S.: -10.0...-18.0 #  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -0.8...-1.0 #  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 1000  
TD travel mm: 8.60...9.40  
> mm: (8.30...9.70)

KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Charge press hPa: 1000  
TD travel mm: 5.80...6.20  
> mm: (5.40...6.60)

KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 800  
Charge press hPa: 1000  
TD travel mm: 1.70...2.50  
> mm: (1.40...2.80)

KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1000  
Charge press. hPa: 1000

TD travel mm: 4.50...7.50 B  
> mm: (4.00...8.00) B

KSB/AFB  
valve > Volt: -

Shutoff  
electromagnet>Volt: 12  
6th speed 1/min: 500  
Charge press. hPa: 1000  
TD travel mm: 3.20...4.80 A  
> mm: (2.50...5.50) A

KSB/AFB  
valve > Volt: -

Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2100  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 7.50...8.10

KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 5.80...6.40

KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 800  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 3.70...4.30

KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
Charge press. hPa: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 75.06...119.54  
quantity> cm3/10s: (75.06...119.54)

2nd speed 1/min: 2100  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 97.30...180.70  
quantity> cm3/10s: (97.30...180.70)



# Delivery-quant. and breakaway char.:

1st speed 1/min: 900\*  
 Charge-air pressure-setting  
 point> hPa: 350  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 46.00...47.00  
 > 1000S.: (44.00...49.00)  
 3rd speed 1/min: 2650  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 0.00...7.00  
 > 1000S.: (0.00...7.00)  
 4th speed 1/min: 2450  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 13.00...21.00  
 > 1000S.: (12.00...22.00)  
 5th speed 1/min: 2300  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.00...37.00  
 > 1000S.: (29.00...39.00)  
 9th speed 1/min: 2100  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 45.00...48.00  
 > 1000S.: (44.00...49.00)  
 12th speed 1/min: 1500  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 45.50...46.50  
 > 1000S.: (44.00...48.00)  
 18th speed 1/min: 600  
 Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 41.00...42.00

> 1000S.: (39.00...44.00)  
 20th speed 1/min: 900  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 47.00...50.00  
 > 1000S.: (46.00...51.00)

## Electr. shutoff:

1st speed 1/min: 450  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

## Damper set qty.:

## LFG-setting:

## Idle delivery:

1st speed 1/min: 450  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 14.50...18.50  
 > 1000S.: (12.50...20.50)

## Rest delivery:

1st speed 1/min: 600  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 4.00...6.00  
 > 1000S.: (3.00...7.00)  
 2nd speed 1/min: 550  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 5.50...8.50

## Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
 Inj.-qty. cm3/ : -9.0...-11.0'  
 difference> 1000S.: (-9.0...-11.0)  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff



electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Inj.-qty. cm3/: -10.0...-18.0#  
 difference> 1000S.: (-10.0...-18.0)#  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 1500  
 Inj.-qty. cm3/: 0.00...+3.00\*  
 difference> 1000S.: (0.00...+3.00)\*  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

TD-travel dif.measurement:  
 correttore anticipo iniezione (SV):  
 1st speed 1/min: 1500  
 TD-travel : -0.8...-1.0 #  
 difference> mm: (-0.8...-1.0) #  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 TD-travel : -1.1...-1.7 \*  
 difference> mm: (-1.0...-1.8) \*  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

SP press.-dif.measurement:  
 pompa di mandata (FP):  
 1st speed 1/min: 1500  
 Supply pump-  
 pressure > : -0.1...-0.3 '  
 difference> bar: (-0.1...-0.3) '  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

#### Automatic starting fuel delivery:

1st speed 1/min: 220  
 KSB/AFB  
 valve > Volt: 12  
 Timing valve Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 52.00...78.00  
 > 1000S.: (52.00...78.00)

2nd speed 1/min: 350  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

Del. quantity cm3/: 35.00...45.00  
 > 1000S.: (35.00...45.00)

4th speed 1/min: 100  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 50.00...80.00  
 > 1000S.: (50.00...80.00)

#### Shutoff electromagnet:

Cut-in  
 >min voltage : 10.0  
 Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.2...5.4
MS	mm: 1.0...1.4
Ya	mm: 37.2...39.2
Yb	mm: 36.6...45.4

#### Ajustement Potentiometer:

Supply voltage  
 pot. > volt: 5.00  
 Output volt  
 pot. > volt: 0.72

#### Remarks:

:  
 :  
 Ya = Distance between VE flange and  
 speed-control lever in idle  
 position  
 Measurement point = edge of control  
 lever on drive end

Yb = Distance between VE flange and  
 speed-control lever in rated speed  
 position  
 Measurement point = edge of control  
 lever on distributor-head end

A = KSB adjustment point  
 B = KSB curve point

Overflow restriction 0.75 mm - Part No.  
 ..343,..344



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA  
Edition : 08.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2300R549  
Type number : 0 460 494 350  
Customer Part-No. :

Customer-specific information  
Customer : FIAT-AUTO

Engine : M705 VA 19.L

Power KW: 51  
Speed 1/min: 2300

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 130.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 1.00  
> mm: +0.02(0.04)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1500  
Setting value mm: 5.70...6.10  
AFB/AFB

valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 1500  
Setting value bar: 5.60...6.20  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

## Full-load del. with charge press.:

Speed 1/min: 1500  
Del. quantity cm3/  
> 1000S.: 33.50...34.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 3.0  
> 1000S.: (3.0)

## Residual-Delivery Setting

Speed 1/min: 530  
Del. quantity cm3/  
> 1000S.: 1.00...3.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

## Full-load speed regulation

Speed 1/min: 2475  
Del. quantity cm3/  
> 1000S.: 19.00...25.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

## Start:

Speed 1/min: 100  
Del. quantity cm3/: 35.00...75.00  
mind> 1000S.: 35.00  
KSB/AFB  
Valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

## Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1500  
Inj.-qty. cm3/



difference> 1000S.: -9.00...-17.00#  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1500  
TD-travel  
difference> mm: -0.6...-0.8 #  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2300  
TD travel mm: 8.40...9.20  
> mm: (8.10...9.50)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
TD travel mm: 5.70...6.10  
> mm: (5.20...6.60)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 800  
TD travel mm: 2.60...3.40  
> mm: (2.30...3.70)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 1000  
TD travel mm: 4.50...7.50 B  
> mm: (4.50...7.50) B  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12  
6th speed 1/min: 500  
TD travel mm: 3.90...5.50 A  
> mm: (3.90...5.50) A  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2300  
Supply-pump

pressure> bar: 7.40...8.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Supply-pump  
pressure> bar: 5.60...6.20  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 600  
Supply-pump  
pressure> bar: 3.40...4.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 800  
Supply-pump  
pressure> bar: 3.90...4.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 600  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...83.40  
quantity> cm3/10s: (26.70...98.40)  
2nd speed 1/min: 2300  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.00  
quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2900  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
3rd speed 1/min: 2700  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 1.00...9.00



> 1000S.: (0.00...10.00)  
 5th speed 1/min: 2475  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 19.00...25.00  
 > 1000S.: (17.00...27.00)  
 9th speed 1/min: 2300  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.70...34.30  
 > 1000S.: (30.50...35.50)  
 12th speed 1/min: 1500  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 33.50...34.50  
 > 1000S.: (31.50...36.50)  
 15th speed 1/min: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 31.20...34.20  
 > 1000S.: (30.20...35.20)  
 20th speed 1/min: 600  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.50...32.50  
 > 1000S.: (27.50...33.50)

#### Electr. shutoff:

1st speed 1/min: 450  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 450  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 8.50...10.50  
 > 1000S.: (6.50...12.50)

2nd speed 1/min: 350  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 20.00...26.00  
 > 1000S.: -

#### High Idle:

1st speed 1/mi: 500  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 15.00...17.00  
 > 1000S.: (13.00...19.00)  
 > 1000S.: -

#### Rest delivery:

1st speed 1/min: 530  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 1.00...3.00  
 > 1000S.: (0.50...3.50)

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1500  
 Inj.-qty. cm3/ : -7.5...-9.5 \*  
 difference> 1000S.: (-7.5...-9.5) \*  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1500  
 Inj.-qty. cm3/: -9.0...-17.0#  
 difference> 1000S.: (-9.0...-17.0)#  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

#### TD-travel dif.measurement: correttore anticipo iniezione (SV):

1st speed 1/min: 1500  
 TD-travel : -0.6...-0.8 #  
 difference> mm: (-0.6...-0.8) #  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12

SP press.-dif.measurement:  
 pompa di mandata (FP):  
 1st speed 1/min: 1500



Supply pump-  
pressure > : -0.1...-0.3 \*  
difference> bar: (-0.1...-0.3) \*  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Automatic starting fuel delivery:

1st speed 1/min: 130  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 45.00...75.00  
> 1000S.: (45.00...75.00)

2nd speed 1/min: 350  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 20.00...40.00  
> 1000S.: (20.00...40.00)

4th speed 1/min: 100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 35.00...75.00  
> 1000S.: (40.00...70.00)

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm: 3.2...3.4
KF	mm: 5.3...5.7
MS	mm: 1.4...1.6
Ya	mm: 37.2...39.2
Yb	mm: 41.1...49.5

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and

speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

A = KSB adjustment point  
B = KSB curve point

Permissible port-to-port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE  
Edition : 03.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2250R571  
Type number : 0 460 494 353  
Customer Part-No. :

Customer-specific information  
Customer : OPEL

Engine : 1,7 DT-LC

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 630 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 4.10...4.30  
AFB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

### Supply-pump pressure

Speed 1/min: 1500  
Charge press hPa: 1000  
Setting value bar: 6.10...6.70  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

### Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm3/  
> 1000S.: 32.80...33.80  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm3/: 2.5  
> 1000S.: (2.5)

### Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm3/  
> 1000S.: 28.50...33.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

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### Low-idle speed regulation

Speed 1/min: 485  
Del. quantity cm3/  
> 1000S.: 8.00...10.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 2.5  
> 1000S.: (2.5)

### Residual-Delivery Setting

Speed 1/min: 800  
Del. quantity cm3/  
> 1000S.: 3.50...4.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

### Full-load speed regulation

Speed 1/min: 2550  
Charge press hPa: 1000



Del. quantity cm<sup>3</sup>/  
> 1000S.: 22.00...26.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

#### Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/: 36.00...52.00  
mind> 1000S.: 36.00  
KSB/AFB  
Valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1000  
Charge press hPa: 1000  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: -8.00...10.00 \*  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1000  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: -0.1...-0.3 \*  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

#### Inspection-pump test specifications Test specifications in parentheses

#### Timing-device characteristic:

2nd speed 1/min: 2250  
Charge press hPa: 1000  
TD travel mm: 7.40...8.00  
> mm: (7.10...8.30)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Charge press hPa: 1000  
TD travel mm: 4.10...4.30  
> mm: (3.60...4.80)  
KSB/AFB  
valve > Volt: 12

Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.40...2.00  
> mm: (1.10...2.30)

KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
9th speed 1/min: 400  
Charge press. hPa: 1000  
TD travel mm: 0.8...2.8 A  
> mm: (0.6...3.0) A

KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12  
10th speed 1/min: 800  
Charge press. hPa: 1000  
TD travel mm: 2.0...4.0 B  
> mm: (1.8...4.2) B

KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 2250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 8.20...8.80  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.10...6.70  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.70...5.30  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12



Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...86.10  
 quantity> cm3/10s: (26.70...101.10)  
 2nd speed 1/min: 2250  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.00  
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...4.00  
 > 1000S.: (0.00...4.00)  
 3rd speed 1/min: 2725  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 4.00...10.00  
 > 1000S.: -  
 5th speed 1/min: 2550  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 22.00...26.00  
 > 1000S.: (20.00...28.00)  
 9th speed 1/min: 2250  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 35.20...37.80  
 > 1000S.: (34.20...38.80)  
 10th speed 1/min: 1800  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 34.70...37.70  
 > 1000S.: (33.90...38.50)  
 12th speed 1/min: 1200  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12

Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 32.80...33.80  
 > 1000S.: (31.00...35.60)  
 20th speed 1/min: 700  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 30.00...33.00  
 > 1000S.: (28.50...34.50)  
 21th speed 1/min: 500  
 Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.50...35.50  
 > 1000S.: (28.00...34.00)

Electr. shutoff:

1st speed 1/min: 485  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)

Shutoff  
 electromagnet>volt: -  
 KSB/AFB  
 valve > Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 485  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 8.00...10.00  
 > 1000S.: (6.00...12.00)  
 2nd speed 1/min: 460  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 13.50...18.50  
 > 1000S.: -

High Idle:

1st speed 1/mi: 540  
 KSB/AFB  
 valve > Volt: 12



Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 8.00...10.00  
> 1000S.: (5.50...12.50)

#### Rest delivery:

1st speed 1/min: 800  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 3.50...4.50  
> 1000S.: (2.00...6.00)

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1000  
Charge press. hPa: 1000  
Inj.-qty. cm<sup>3</sup>/: -7.0...-15.0 "  
difference> 1000S.: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Inj.-qty. cm<sup>3</sup>/: 4.0...6.0 'z  
difference> 1000S.: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

#### TD-travel dif.measurement: correttore anticipo iniezione (SV):

1st speed 1/min: 1000  
Charge press. hPa: 1000  
TD-travel : -0.5...-0.7 "  
difference> mm: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
TD-travel : -0.9...-1.5 '  
difference> mm: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 14.00...16.00  
> 1000S.: (12.50...17.50)

#### Automatic starting fuel delivery:

1st speed 1/min: 250  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 40.00...50.00  
> 1000S.: -

2nd speed 1/min: 400  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 27.00...37.00  
> 1000S.: -

3rd speed 1/min: 100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 47.00...47.00

4th speed 1/min: 100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 36.00...52.00  
> 1000S.: -

#### Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation	
K	mm: 3.2...3.4
KF	mm: 5.2...5.6
MS	mm: 0.7...1.1
Ya	mm: 24.2...26.2
Yb	mm: 53.7...64.3

Remarks:



:  
Ya = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Z = Absolute delivery

Pump in stepped LDA

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 07.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2300R599  
Type number : 0 460 494 366  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 1,9 L UD B4

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 000

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 017

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 840

Start of delivery block  
Piston stroke mm: 0.8  
> mm:  $\pm 0.02(0.05)$   
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value mm: 4.30...4.50  
Shutoff  
electromagnet>Volt: 12

### Supply-pump pressure

Speed 1/min: 1250  
Charge press hPa: 750  
Setting value bar: 5.40...6.00  
Shutoff  
electromagnet>Volt: 12

### Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 50.00...51.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (3.0)

### Residual-Delivery Setting

Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.00...8.00  
Shutoff  
electromagnet Volt: 12

### Full-load speed regulation

Speed 1/min: 2600  
Charge press hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 9.00...13.00  
Shutoff  
electromagnet>Volt: 12

### Load-dependent start of delivery: Inj.-qty.dif.measurement:

Speed 1/min: 1250  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: -8.00...-12.00#  
Shutoff  
electromagnet>Volt: 12  
TD-travel dif.measurement

1.Speed 1/min: 1250  
TD-travel  
difference> mm: -1.9...-2.1 #  
Shutoff  
electromagnet>Volt: 12

### Inspection-pump test specifications Test specifications in parentheses

### Timing-device characteristic:

2nd speed 1/min: 2100  
Charge press hPa: 750  
TD travel mm: 8.00...8.60



> mm: (7.50...9.10)  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 1250  
 Charge press hPa: 750  
 TD travel mm: 4.30...4.50  
 > mm: (3.60...5.20)  
 Shutoff  
 electromagnet>Volt: 12  
 4th speed 1/min: 750  
 Charge press hPa: 750  
 TD travel mm: 1.50...2.10  
 > mm: (1.00...2.60)  
 Shutoff  
 electromagnet>Volt: 12  
 5th speed 1/min: 1250  
 Charge press. hPa: -  
 TD travel mm: 0.00...0.60  
 > mm: (0.00...0.60)  
 KSB/AFB  
 valve > Volt: ALFB  
 Shutoff  
 electromagnet>Volt: 12  
  
 Supply-pump pressure characteristic:  
  
 1st speed 1/min: 750  
 Charge press. hPa: 750  
 Supply-pump  
 pressure> bar: 4.30...4.90  
 Shutoff  
 electromagnet>Volt: 12  
 2nd speed 1/min: 1250  
 Charge press. hPa: 750  
 Supply-pump  
 pressure> bar: 5.40...6.00  
 Shutoff  
 electromagnet>Volt: 12  
 3rd speed 1/min: 2100  
 Charge press. hPa: 750  
 Supply-pump  
 pressure> bar: 7.40...8.00  
 Shutoff  
 electromagnet>Volt: 12  
  
 Overflow quantity at overflow valve:  
  
 1st speed 1/min: 1250  
 Charge press. hPa: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...86.18  
 quantity> cm3/10s: (29.19...98.69)  
 2nd speed 1/min: 2100  
 Charge press. hPa: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.90  
 quantity> cm3/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750  
 Charge press. hPa: 750  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 5th speed 1/min: 2600  
 Charge press. hPa: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 9.00...13.00  
 > 1000S.: (7.00...15.00)  
 8th speed 1/min: 2400  
 Charge press. hPa: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 32.50...42.50  
 > 1000S.: (31.50...43.50)  
 9th speed 1/min: 2100  
 Charge press. hPa: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 42.00...44.00  
 > 1000S.: (40.80...45.20)  
 12th speed 1/min: 1250  
 Charge press. hPa: 750  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 50.00...51.00  
 > 1000S.: (48.30...52.70)  
 21th speed 1/min: 450  
 Charge press. hPa: -  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 37.20...43.20  
 > 1000S.: (34.70...45.70)

Electr. shutoff:

1st speed 1/min: 450  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 16.00...18.00



> 1000S.: (13.00...21.00)  
Dispersion cm3/: 2.0  
> 1000S.: (3.0)

#### High Idle:

1st speed 1/mi: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 16.00...18.00  
> 1000S.: (13.00...21.00)

#### Rest delivery:

1st speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 7.00...8.00  
> 1000S.: (5.50...9.50)

#### Load-dependent start of delivery: Inj.-qty.dif.measurement:

1st speed 1/min: 1250  
Inj.-qty. cm3/ : -7.0...-11.0#  
difference> 1000S.: (-5.0...-13.0)#  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
3rd speed 1/min: 1250  
Inj.-qty. cm3/: -4.5...-6.5 '  
difference> 1000S.: (-4.5...-6.5) '  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1250  
5th speed 1/min: 1250  
Inj.-qty. cm3/: 0.00...3.00 \*  
difference> 1000S.: (0.00...3.00) \*  
Shutoff  
electromagnet>Volt: 12

#### TD-travel dif.measurement:

correttore anticipo iniezione (SV):  
1st speed 1/min: 1250  
TD-travel : -1.9...-2.1 #  
difference> mm: (-1.9...-2.1) #  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
TD-travel : -2.5...-2.9 \*  
difference> mm: (-2.1...-3.3) \*  
Shutoff  
electromagnet>Volt: 12

#### SP press.-dif.measurement:

pompa di mandata (FP):  
1st speed 1/min: 1250  
Supply pump-  
pressure > : -0.1...-0.3 '  
difference> bar: (-0.1...-0.3) '

Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Supply pump-  
pressure > : -1.0...-1.4 \*  
difference> bar: (-0.8...-1.4) \*

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

1st speed 1/min: 1000  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 34.00...36.00  
> 1000S.: (32.00...38.00)

#### Automatic starting fuel delivery:

1st speed 1/min: 180  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 35.00...55.00  
> 1000S.: (35.00...55.00)

2nd speed 1/min: 380  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 31.00...51.00  
> 1000S.: (31.00...51.00)

3rd speed 1/min: 100  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 37.00...43.00  
> 1000S.: (32.50...47.50)

#### Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

#### Mounting and assembly dimensions:

Designation  
K mm: 3.6...3.8  
KF mm: KOT  
MS mm: 1.0...1.4  
Ya mm: 37.6...41.6  
Yb mm: 50.4...63.3

#### Remarks:

:  
:  
Ya = Distance between VE flange and



speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Pump in stepped LDA

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



# BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 07.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2200R603  
Type number : 0 460 494 368  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 1,9 l UD MVEG 2

## TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 111

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 0.8  
> mm: +0.02(0.05)  
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

## Timing-device travel

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value mm: 5.30...5.70  
Shutoff  
electromagnet>Volt: 12

## Supply-pump pressure

Speed 1/min: 1250  
Charge press hPa: 750  
Setting value bar: 5.50...6.10  
Shutoff  
electromagnet>Volt: 12

## Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 46.00...47.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (3.0)

## Residual-Delivery Setting

Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.50...8.50  
Shutoff  
electromagnet Volt: 12

## Full-load speed regulation

Speed 1/min: 2525  
Charge press hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 18.00...22.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

## Timing-device characteristic:

2nd speed 1/min: 2000  
Charge press hPa: 750  
TD travel mm: 8.20...9.00  
> mm: (7.80...9.40)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
Charge press hPa: 750  
TD travel mm: 5.30...5.70  
> mm: (4.70...6.30)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 750  
Charge press hPa: 750  
TD travel mm: 3.00...3.80  
> mm: (2.60...4.20)  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 2000



Charge press. hPa: 750  
TD travel mm: 0.40...1.20  
> mm: - ALFB  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

#### Supply-pump pressure characteristic:

1st speed 1/min: 750  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 4.00...4.60  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 5.50...6.10  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 7.70...8.30  
Shutoff  
electromagnet>Volt: 12

#### Overflow quantity at overflow valve:

1st speed 1/min: 1250  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.18  
quantity> cm3/10s: (29.19...98.69)  
2nd speed 1/min: 2100  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.90  
quantity> cm3/10s: (41.70...152.90)

#### Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750  
Charge press. hPa: 750  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
5th speed 1/min: 2525  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 18.00...22.00  
> 1000S.: (16.00...24.00)  
8th speed 1/min: 2400

Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 29.50...39.50  
> 1000S.: (28.50...40.50)  
9th speed 1/min: 2100  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.20...47.20  
> 1000S.: (44.00...48.40)  
12th speed 1/min: 1250  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 46.00...47.00  
> 1000S.: (44.30...48.70)  
21th speed 1/min: 450  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 41.70...47.70  
> 1000S.: (39.20...50.20)

#### Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

#### Damper set qty.:

#### LFG-setting:

#### Idle delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 21.00...23.00  
> 1000S.: (18.00...26.00)

#### High Idle:

1st speed 1/mi: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 17.00...19.00  
> 1000S.: (14.00...22.00)

#### Rest delivery:

1st speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 7.50...8.50



> 1000s.: (6.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...55.00

> 1000s.: (35.00...55.00)

2nd speed 1/min: 380

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 31.00...51.00

> 1000s.: (31.00...51.00)

3rd speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 40.00...46.00

> 1000s.: (35.50...50.50)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: KOT

MS mm: 1.0...1.4

Ya mm: 36.0...40.0

Yb mm: 48.6...58.4

Remarks:

⋮

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Pump in stepped LDA

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW  
Edition : 08.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2200R604  
Type number : 0 460 494 369  
Customer Part-No. :

Customer-specific information  
Customer : VW

Engine : 1,9 l UD MVEG 2

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.50

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 111

Opening  
Pressure> bar: 147.00...150.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery block  
Piston stroke mm: 0.8  
> mm:  $\pm 0.02(0.05)$   
Outlet > : A

Injection-pump setting values  
Test specifications in parentheses

### Timing-device travel

Speed 1/min: 1250  
Charge press. hPa: 750  
Setting value mm: 5.30...5.70  
Shutoff  
electromagnet>Volt: 12

### Supply-pump pressure

Speed 1/min: 1250  
Charge press hPa: 750  
Setting value bar: 5.50...6.10  
Shutoff  
electromagnet>Volt: 12

### Full-load del. with charge press.:

Speed 1/min: 1250  
Charge press. hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 46.00...47.00  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (3.0)

### Residual-Delivery Setting

Speed 1/min: 550  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 7.50...8.50  
Shutoff  
electromagnet Volt: 12

### Full-load speed regulation

Speed 1/min: 2525  
Charge press hPa: 750  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 18.00...22.00  
Shutoff  
electromagnet>Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

### Timing-device characteristic:

2nd speed 1/min: 2000  
Charge press hPa: 750  
TD travel mm: 8.20...9.00  
> mm: (7.80...9.40)  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1250  
Charge press hPa: 750  
TD travel mm: 5.30...5.70  
> mm: (4.70...6.30)  
Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 750  
Charge press hPa: 750  
TD travel mm: 3.00...3.80  
> mm: (2.60...4.20)  
Shutoff  
electromagnet>Volt: 12  
5th speed 1/min: 2000



Charge press. hPa: 750  
TD travel mm: 0.40...1.20  
> mm: - ALFB  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 750  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 4.00...4.60  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1250  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 5.50...6.10  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 2000  
Charge press. hPa: 750  
Supply-pump  
pressure> bar: 7.70...8.30  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 1250  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 41.70...86.18  
quantity> cm3/10s: (29.19...98.69)  
2nd speed 1/min: 2100  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Overflow : 55.60...139.90  
quantity> cm3/10s: (41.70...152.90)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2750  
Charge press. hPa: 750  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
5th speed 1/min: 2525  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 18.00...22.00  
> 1000S.: (16.00...24.00)  
8th speed 1/min: 2400

Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 29.50...39.50  
> 1000S.: (28.50...40.50)  
9th speed 1/min: 2100  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 45.20...47.20  
> 1000S.: (44.00...48.40)  
12th speed 1/min: 1250  
Charge press. hPa: 750  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 46.00...47.00  
> 1000S.: (44.30...48.70)  
21th speed 1/min: 450  
Charge press. hPa: -  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 41.70...47.70  
> 1000S.: (39.20...50.20)

Electr. shutoff:

1st speed 1/min: 450  
Del. quantity cm3/: 0.00...3.00  
> 1000S.: (0.00...3.00)  
Shutoff  
electromagnet>volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 450  
Shutoff  
electromagnet Volt: 12  
Del. quantity cm3/: 21.00...23.00  
> 1000S.: (18.00...26.00)

High Idle:

1st speed 1/mi: 500  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 17.00...19.00  
> 1000S.: (14.00...22.00)

Rest delivery:

1st speed 1/min: 550  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 7.50...8.50



> 1000S.: (6.00...10.00)

Automatic starting fuel delivery:

1st speed 1/min: 180

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 35.00...55.00

> 1000S.: (35.00...55.00)

2nd speed 1/min: 380

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 31.00...51.00

> 1000S.: (31.00...51.00)

3rd speed 1/min: 100

Shutoff

electromagnet>Volt: 12

Del. quantity cm<sup>3</sup>/: 40.00...46.00

> 1000S.: (35.50...50.50)

Shutoff electromagnet:

Cut-in

>min voltage : 10.0

Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K mm: 3.6...3.8

KF mm: KOT

MS mm: 1.0...1.4

Ya mm: 36.0...40.0

Yb mm: 48.6...58.4

Remarks:

:

Ya = Distance between VE flange and  
speed-control lever in idle  
position

Measurement point = edge of control  
lever on drive end

Yb = Distance between VE flange and  
speed-control lever in rated speed  
position

Measurement point = edge of control  
lever on distributor-head end

Pump in stepped LDA

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.



## BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : OPE  
Edition : 03.02.95  
replaces : -  
Calibrating oil : ISO-4113  
  
Injection pump : VE4/9F2250R571-1  
Type number : 0 460 494 372  
Customer Part-No. :

Customer-specific information  
Customer : OPEL

Engine : 1,7 DT-LC

### TEST BENCH REQUIREMENTS

Overflow restricti: 1 463 456 303

Calibrating-oil  
return>temp. > °C  
with>thermometer> : 40.00...48.00  
Electronically> : 42.00...50.00

Inlet press., bar : 0.30...0.40

Calibrating nozzle-holder  
assembly> : 1 688 901 022

Opening  
Pressure> bar: 127.00...133.00

Test inj. tubing : 1 680 750 073

Outside diameter : 6.00  
x Wall>thickness : 2.00  
x Length> mm: 450

Start of delivery  
Prestroke mm: -  
> (from BDC): -

Injection-pump setting values  
Test specifications in parentheses

Timing-device travel

Speed 1/min: 1500  
Charge press. hPa: 1000  
Setting value mm: 4.10...4.30  
AFB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure

Speed 1/min: 1500  
Charge press hPa: 1000  
Setting value bar: 6.10...6.70  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Full-load del. with charge press.:

Speed 1/min: 1200  
Charge press. hPa: 1000  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 32.80...33.80  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Dispersion cm<sup>3</sup>/: 2.5  
> 1000S.: (2.5)

Full-load del. w/out charge press.:

Speed 1/min: 500  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 28.50...33.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

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Low-idle speed regulation

Speed 1/min: 485  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 8.00...10.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm<sup>3</sup>/: 2.5  
> 1000S.: (2.5)

Residual-Delivery Setting

Speed 1/min: 800  
Del. quantity cm<sup>3</sup>/  
> 1000S.: 3.50...4.50  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

Full-load speed regulation

Speed 1/min: 2550  
Charge press hPa: 1000



Del. quantity cm<sup>3</sup>/  
> 1000S.: 22.00...26.00  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Start:

Speed 1/min: 100  
Charge press hPa: -  
Del. quantity cm<sup>3</sup>/: 36.00...52.00  
mind> 1000S.: 36.00  
KSB/AFB  
Valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

Speed 1/min: 1000  
Charge press hPa: 1000  
Inj.-qty. cm<sup>3</sup>/  
difference> 1000S.: -8.00...10.00 \*  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
SP press.-dif.measurement

1.Speed 1/min: 1000  
Charge press hPa: 1000  
Supply pump  
pressure>  
difference> bar: -0.1...-0.3 \*  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

Inspection-pump test specifications  
Test specifications in parentheses

Timing-device characteristic:

2nd speed 1/min: 2250  
Charge press hPa: 1000  
TD travel mm: 7.40...8.00  
> mm: (7.10...8.30)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1500  
Charge press hPa: 1000  
TD travel mm: 4.10...4.30  
> mm: (3.60...4.80)  
KSB/AFB  
valve > Volt: 12

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Shutoff  
electromagnet>Volt: 12  
4th speed 1/min: 1000  
Charge press hPa: 1000  
TD travel mm: 1.40...2.00  
> mm: (1.10...2.30)  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
9th speed 1/min: 400  
Charge press. hPa: 1000  
TD travel mm: 0.8...2.8 A  
> mm: (0.6...3.0) A  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12  
10th speed 1/min: 800  
Charge press. hPa: 1000  
TD travel mm: 2.0...4.0 B  
> mm: (1.8...4.2) B  
KSB/AFB  
valve > Volt: -  
Shutoff  
electromagnet>Volt: 12

Supply-pump pressure characteristic:

1st speed 1/min: 2250  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 8.20...8.80  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1500  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 6.10...6.70  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
3rd speed 1/min: 1000  
Charge press. hPa: 1000  
Supply-pump  
pressure> bar: 4.70...5.30  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Overflow quantity at overflow valve:

1st speed 1/min: 700  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12



Shutoff  
 electromagnet>Volt: 12  
 Overflow : 41.70...86.10  
 quantity> cm3/10s: (26.70...101.10)  
 2nd speed 1/min: 2250  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Overflow : 55.60...139.00  
 quantity> cm3/10s: (40.60...154.00)

Delivery-quant. and breakaway char.:

2nd speed 1/min: 2950  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 0.00...4.00  
 > 1000S.: (0.00...4.00)  
 3rd speed 1/min: 2725  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 4.00...10.00  
 > 1000S.: -  
 5th speed 1/min: 2550  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 22.00...26.00  
 > 1000S.: (20.00...28.00)  
 9th speed 1/min: 2250  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 35.20...37.80  
 > 1000S.: (34.20...38.80)  
 10th speed 1/min: 1800  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 34.70...37.70  
 > 1000S.: (33.90...38.50)  
 12th speed 1/min: 1200  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12

Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 32.80...33.80  
 > 1000S.: (31.00...35.60)  
 20th speed 1/min: 700  
 Charge press. hPa: 1000  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 30.00...33.00  
 > 1000S.: (28.50...34.50)  
 21th speed 1/min: 500  
 Charge press. hPa: -  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 28.50...33.50  
 > 1000S.: (28.00...34.00)

Electr. shutoff:

1st speed 1/min: 485  
 Charge press. hPa: -  
 Del. quantity cm3/: 0.00...3.00  
 > 1000S.: (0.00...3.00)  
 Shutoff  
 electromagnet>volt: -  
 KSB/AFB  
 valve > Volt: -

Damper set qty.:

LFG-setting:

Idle delivery:

1st speed 1/min: 485  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet Volt: 12  
 Del. quantity cm3/: 8.00...10.00  
 > 1000S.: (6.00...12.00)  
 2nd speed 1/min: 460  
 KSB/AFB  
 valve > Volt: 12  
 Shutoff  
 electromagnet>Volt: 12  
 Del. quantity cm3/: 13.50...18.50  
 > 1000S.: -

High Idle:

1st speed 1/mi: 540  
 KSB/AFB  
 valve > Volt: 12



Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 8.00...10.00  
> 1000S.: (5.50...12.50)

Rest delivery:

1st speed 1/min: 800  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 3.50...4.50  
> 1000S.: (2.00...6.00)

Load-dependent start of delivery:  
Inj.-qty.dif.measurement:

1st speed 1/min: 1000  
Charge press. hPa: 1000  
Inj.-qty. cm3/ : -7.0...-15.0 "  
difference> 1000S.: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
Inj.-qty. cm3/ : 4.0...6.0 'Z  
difference> 1000S.: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet Volt: 12

TD-travel dif.measurement:  
correttore anticipo iniezione (SV):  
1st speed 1/min: 1000  
Charge press. hPa: 1000  
TD-travel : -0.5...-0.7 "  
difference> mm: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
2nd speed 1/min: 1000  
Charge press. hPa: 1000  
TD-travel : -0.9...-1.5 '  
difference> mm: -  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12

Part-load del.at 3rd inj.-qty.  
terza fermo della portata  
stop (EGR set)  
scarico) (ARF)  
gaz d'échappement-ARF)  
Spacing mm: 12.0

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1st speed 1/min: 1000  
Charge press. hPa: 1000  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 14.00...16.00  
> 1000S.: (12.50...17.50)

Automatic starting fuel delivery:

1st speed 1/min: 250  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 40.00...50.00  
> 1000S.: -

2nd speed 1/min: 400  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 27.00...37.00  
> 1000S.: -

3rd speed 1/min: 100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 47.00...47.00

4th speed 1/min: 100  
KSB/AFB  
valve > Volt: 12  
Shutoff  
electromagnet>Volt: 12  
Del. quantity cm3/: 36.00...52.00  
> 1000S.: -

Shutoff electromagnet:

Cut-in  
>min voltage : 10.0  
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation  
K mm: 3.2...3.4  
KF mm: 5.2...5.6  
MS mm: 0.7...1.1  
Ya mm: 24.2...26.2  
Yb mm: 53.7...64.3

Remarks:

:



Y<sub>a</sub> = Distance between VE flange and  
speed-control lever in idle  
position  
Measurement point = edge of control  
lever on drive end

Y<sub>b</sub> = Distance between VE flange and  
speed-control lever in rated speed  
position  
Measurement point = edge of control  
lever on distributor-head end

Z = Absolute delivery

Pump in stepped LDA

Permissible port/port scatter with  
stop test, electrical = max. 5.0  
ccm/1000 S.